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Railway Age

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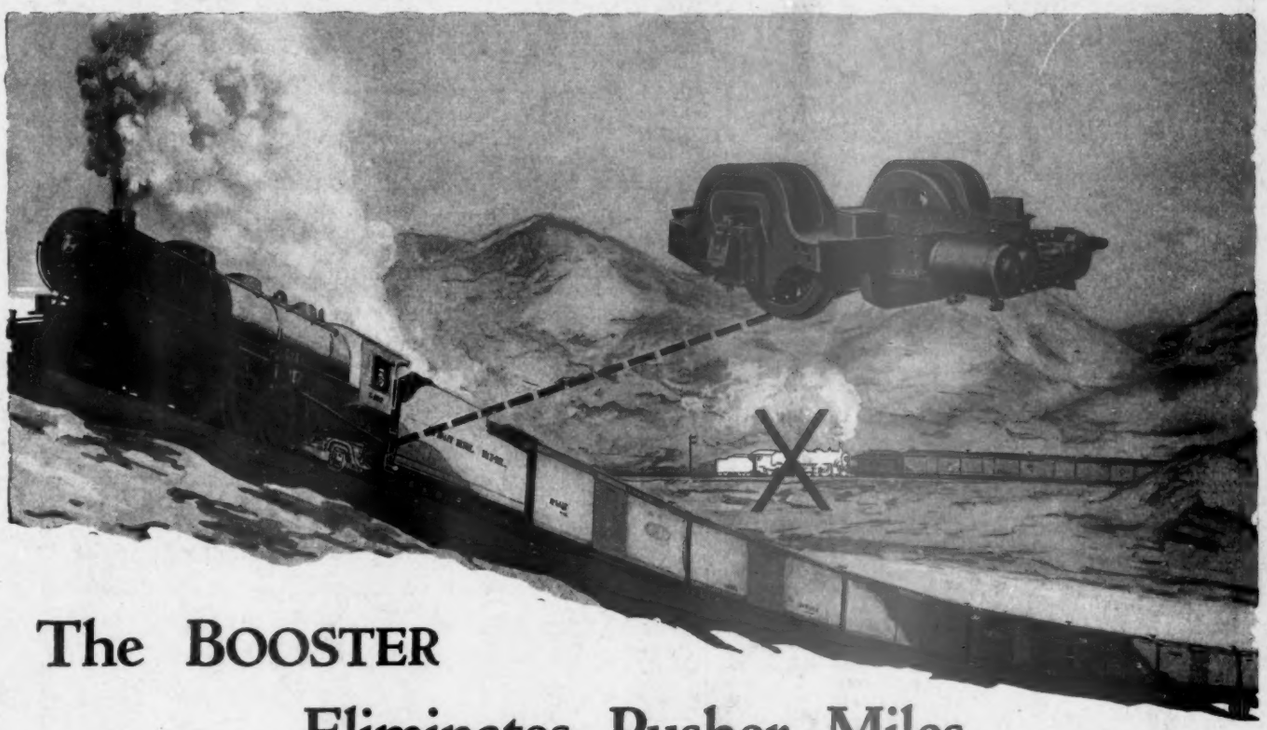

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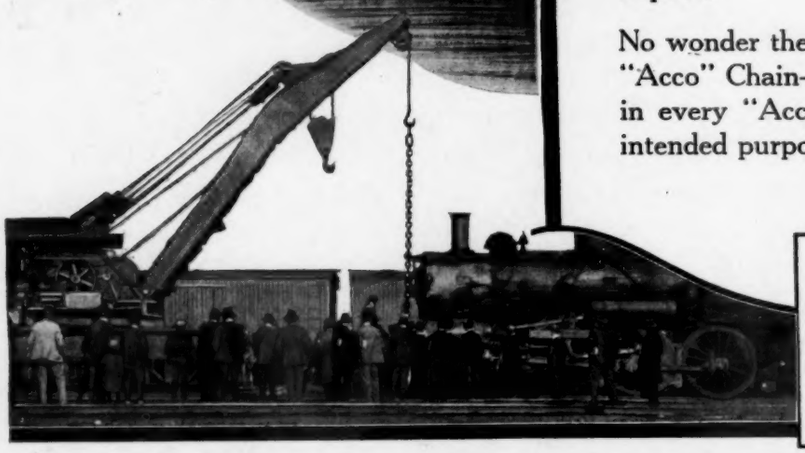

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EDITORIAL

Railway Age

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A Much Needed Adjustment

One measure fostered by union labor under the sponsorship of the United States Railroad Administration was the standardization of wages, that is, the same wage for the good, the bad and the indifferent, under all conditions. Under this plan every possible effort was made to decrease the differential between the wages paid to the inexperienced beginner and that received by the efficient veteran. Considerable progress was made to this end in the clerical organizations; minimum rates of pay were greatly increased and only moderate increments were made in the established rates for the more experienced employees. The plan under which wages were reduced by the Labor Board in Decision 147 has not corrected this condition. As a result, the railroads are now compelled to pay wages to boys and girls with no experience which are greatly out of line with those paid more experienced clerks. So small has been this differential between positions of different grades that it has been difficult in some cases to get clerks to take the more responsible positions. At least one railroad recently has found it possible to overcome this difficulty by arriving at an agreement for a reduction in wages with representatives of its clerical employees. This reduction has been worked out on a sliding scale whereby practically no decrease has been made for the positions requiring the greatest degree of responsibility and experience but with a maximum reduction for the beginners. It is to be hoped that other roads will be successful in the prosecution of similar negotiations with their employees.

Helping Employees Buy Stock

The Southern Pacific has announced a plan, effective February 1, whereby employees of the system will be assisted in the purchase of Southern Pacific Company stock. This means the addition of another important railway system to the list of roads which have now adopted such plans. This list includes the Lehigh Valley, the New York Central, the Union Pacific and now the Southern Pacific—rather imposing advocates, we should say, for a plan of any kind. The Southern Pacific plan, in its essentials, is the same as those of the other roads. The company proposes to assist its employees by securing the stock for them and having them pay for it by the deduction of monthly installments from the employee's pay. The stock is not treasury stock but is secured in the open market. There is lacking, therefore, any of that feature of paternalism which might otherwise spoil a plan of this kind. In the Southern Pacific plan, as in the plans adopted by the other railway companies and by certain industrial companies, the employee, when he has completed the payments on his stock, is as much a bona fide stockholder as any other stockholder. The *Railway Age,* on a number of occasions has stated its belief that railway employees should be encouraged to secure stock of the company by which they are employed. The railway that numbers many of its employees as stockholders will agree that our opinion is correct. The Lehigh Valley established some time ago a plan such as the Southern Pacific is now adopting and has had marked success with it. It may be cause or effect, but it is a fact that the officers of the Lehigh Valley are most enthusiastic concerning the spirit of loyalty which exists on the Lehigh Valley system. The Pennsylvania numbers a proportion of its employees also as stockholders, although it has not had a plan for assisting its employees to buy stock. Presumably this ownership of stock by employees is only one factor among several, but it is nevertheless true that the morale of the Pennsylvania rank and file is one of the most valuable assets the Pennsylvania System has.

The Shantung Railway

Control of the Shantung Railway is a point on which hinges the settlement of a number of perplexing problems in the Far East. According to the New York Times, Japan has agreed to accept China's offer of 53,000,000 marks for the property, with the stipulation that the traffic manager is to be a Japanese. At this point China balks. There is much to be said for the Chinese stand in this controversy. If China can control her railways, then all nations will have equal opportunities in China. Heretofore the foreign-owned railways have been used entirely too frequently as political instruments of the country of ownership. China needs the help of foreign capital and foreign skill in solving her railroad problem, but the solution of that problem will be indefinitely postponed as long as railways are seen primarily as instruments of economic domination rather than as means of increasing the national wealth. It seems that China is likely to have little confidence in railways operated by foreigners and, that being the case, the taking over of such railways by the government is the only course to follow.

Old Shop Machinery Limits Output

The extent to which obsolete, worn-out machinery limits railroad shop output and increases costs is generally recognized. Additional evidence of this unfortunate condition, however, continually crops out, as indicated in the discussion of a paper on the correct machining of wheels and axles, read before a recent meeting of the Car Foremen's Association of Chicago. When questioned as to how many rolled steel wheels can be turned on a modern wheel lathe in an eight-hour day, one of the members said, "With our machinery, which is not modern, we can turn out about five pairs in eight hours. At C—— (mentioning another point on the system), where the machinery is not quite so old, they can turn eight pairs in eight hours." The fact of the matter is that had a modern, high-power wheel lathe been installed at either of the points mentioned, rolled steel car wheels could have been turned in an average of 30 minutes a pair from floor to floor, making a total of 16 pairs in eight hours. No reflection is intended on the car shop foreman at the point where only five pairs of wheels are being turned in eight hours. He has probably found by sad experience that any attempt to secure more than that production will result in a broken lathe and consequent delay and tie-up of the work while the lathe is being repaired. Neither is there reflection on the railroad management, which probably has many such old machines and would be only too glad to replace them all could the necessary funds be obtained. Whatever may be the reason, the fact remains that car wheel lathes with only

33 to 50 per cent of the efficiency of modern machines are being used by that railroad with the unavoidable conclusion that every pair of car wheels turned is costing almost that proportion more for the operation than should be necessary.

The Automatic Train Control Order

WHILE the order which the Interstate Commerce Commission served on 49 carriers to show cause on or before March 15, 1922, why they should not be required to make installations of automatic train control, was unexpected, it has served to clarify the atmosphere with reference to this important development in train operation. As was to be expected, the order has produced widely differing reactions. Some railway men feel that the art has not yet been developed sufficiently to warrant installations on such an extensive scale. Others seem to think that too much time already has been spent on investigation and discussion. Still others regret because the order was issued before installations which they were planning had been started.

While the order shows evidence of haste in preparation, and the specifications are very general in character the action taken by the commission may well be considered as a start toward determining, under actual service conditions, the value of a number of devices which show evidences of merit, but which have not as yet been tested outside the laboratory, as well as toward further testing of the value of devices which already have shown what they can do under actual service conditions.

Some confusion exists as to the provisions of this order. In brief, it requires that the railroads mentioned shall each make an installation of an automatic train stop or train control device over a full passenger locomotive division which may be selected by the railroad itself with the approval of the commission, between those points on the carrier's main line designated in the order. The device selected must be applied to or operated in connection with all road engines operating on or over the district chosen.

It is to be expected that the order will be modified after the hearings before the commission. It is possible that all of the roads cited in the order may not be required to make installations. It further appears that the roads were selected on the basis of gross earnings, and the list includes a number which have little or no signaling, which fact will undoubtedly be taken into account before any final order is issued. It is also reasonable to expect that the commission will allow the carriers to select other passenger engine divisions than between the points specified.

Another question of paramount interest is the cost of installation. With such data as are at hand, and on the basis of an average passenger engine division of 125 miles with approximately 65 locomotives operating over it, it is estimated that the cost of installation will range between $100,000 and $600,000, depending on the device selected.

It is to be hoped that the railroads will not endeavor to contest this order, provided it is modified in such a manner and to such an extent that the installations may be made without undue hardship to any road concerned. These installations should be located in different sections of the country in order that the effects of widely differing climatic and operating conditions may be studied carefully. The kind of device to be installed should be left to the carrier to determine in the light of what it thinks will best meet its needs. In order that no undue hardship shall be placed on any carrier, or carriers, it has been suggested that the expense of the installation and maintenance of the devices should be pro-rated among the members of the American Railway Association.

The air brake, the automatic coupler, and the automatic block signal system have effected savings in addition to providing greater safety in operation. The average operating officer may well ask wherein automatic train control will aid operation. It is interesting to note in this connection, that the movement of trains by signal indication with the elimination of the written train order and the derail are receiving serious consideration at the present time. No doubt the shortcomings of the train order system and the fact that a derail, when effective, may wreck a train are largely responsible for this. In train operation by signal indication the defects of the train order system are corrected but the fallibility of the human element still remains. It is this that it is hoped automatic train control will practically eliminate without decreasing the employees' sense of responsibility. While many have feared that the installation of additional mechanical safety facilities will tend to make men careless, train movement with train control has been in operation sufficiently to largely remove this fear.

Through the use of automatic train control and the automatic block system, with take-siding signals and the remote control of passing siding, junction, or other switches, derails can be eliminated and trains can be operated much closer to schedule through fogs and storms *safely* without train orders, and a maximum use of the tracks will result. Also, it should be remembered that the expenditures for certain classes of collisions and derailments will be materially decreased, as well as overtime, while there will be less wear and tear to equipment because of the elimination of unnecessary stops.

Labor Board Should Stick to Facts

IT HARDLY NEEDS to be said that opinions rendered, awards made and statements issued by, or on behalf, of the Railroad Labor Board should be based upon a knowledge of facts and that the facts should be correctly stated. The award made, the opinions rendered and statements issued on behalf of the majority of the board in the case involving the rules and working conditions of clerks, freight handlers, express and station employees do not measure up to these requirements. The award made by the majority of the board, which became effective on February 1, gave all these employees an eight-hour day except where service is intermittent, with pro-rata overtime for the ninth hour, and time and one-half thereafter. Where service is intermittent eight hours actual time on duty within a spread of twelve hours is made to constitute a day's work.

The three railroad members of the board filed an opinion dissenting from the part of the decision of the majority providing for punitive payment for service rendered beyond the ninth hour. In their dissenting opinion the railroad members made certain statements of fact regarding the hours of work of these classes of employees prior to federal control. Three of the members who joined in the majority opinion, Messrs. McMenimen, Hooper and Hanger, then filed an answer to the dissenting opinion, in which they attempted to show that the statements made by the railroad members regarding working hours prior to federal control were incorrect. The result of the publication of this answer to the dissenting opinion was to disclose that a majority of the members of the board who had signed the majority opinion did not themselves state correctly the facts as to the working hours of these classes of employees prior to government control or on what basis they were paid.

The railroad members, in their dissenting opinion, said that prior to federal control clerical forces generally were paid on a monthly rate basis, which covered all service rendered. Messrs. McMenimen, Hooper and Hanger, in their answer, said: "This statement is in error to the extent that a number of carriers were paying overtime to clerical and station employees prior to federal control." It develops, however, that a tabulation made by the Railroad Wage Commission, based upon a study of representative railroads

for the month of December, 1917, showed that on these railroads more than 99 per cent of all clerks were paid a monthly rate which did cover all service rendered by them.

Another statement made by the railroad members in their dissenting opinion was that prior to federal control other classes of employees covered by the clerks' agreement, including freight house laborers and other station employees, generally worked ten hours per day and were paid at pro-rata rates for overtime work. It was added that ordinarily the same hours of service per day are now required to meet business needs throughout the country along the lines of the carriers. This statement also was challenged in the answer to the dissenting opinion as "erroneous to a very large degree." It now develops that the study by the Railroad Wage Commission of the hours and working conditions of these classes of employees mentioned above showed that 89 per cent of them worked ten hours or more. It also showed that 92 per cent of the "freight house laborers and other station employees" mentioned in the dissenting opinion worked ten or more hours in December, 1917.

In support of their contention that the statements made by the railroad members regarding working hours under private operation were erroneous, Messrs. McMenimen, Hooper and Hanger quoted extensive extracts from answers made by the regional directors and individual railroads to a questionnaire sent out by the Railroad Administration in August, 1919. It develops, however, that the answer to the dissenting opinion did not include all the replies received by the Railroad Administration to these questions, although the language in it plainly implied that it did, and in consequence a misleading impression was given regarding the facts shown by the replies to the questionnaire.

For example, one question asked in the questionnaire, was: "Would it be possible to work the employees coming under the provisions of supplement No. 7 on a 44-hour week without punitive overtime in (a) general offices, (b) division offices, (c) warehouses, (d) station ticket offices and other (e) miscellaneous points." With reference to the reply received from the Pocahontas region it was stated: "Reply indicates that all but 5 per cent of the employees in the general offices and warehouses could be given a 44-hour week without the payment of punitive overtime." The reply actually received by the Railroad Administration from the Pocahontas region was quite different, being as follows: "It would not be possible to work employees coming under the provisions of supplement No. 7 on a 44-hour week without punitive overtime, for the reason that numerous such employees now work Saturday afternoons and certain hours on Sundays. The percentage would possibly be (a) general office, 5 per cent; (b) division office, 20 per cent; (c) warehouse office, 5 per cent; (d) station ticket office, 100 per cent; (e) miscellaneous office, 5 per cent." The answers made by some important railroads, including, for example, the Pennsylvania and the Chicago, Milwaukee & St. Paul, were not quoted at all. The records of the Railroad Administration show that these railroads answered that employees of none of the classes mentioned could be given a 44-hour week without the payment of punitive overtime. It is as pernicious and indefensible to misrepresent by refraining from telling all the facts, when all are presumed to be given, as it is to misstate them.

The railroad members, in their dissenting opinion, said: "The work of all classes covered by this agreement is to an extent intermittent and does not require constant application. With a lesser day than ten hours the carrier cannot, with economy and efficiency, meet the demands of the public." Those signing the answer to the dissenting opinion undertook to show that practically all these employees worked continuous time. The report of the Interstate Commerce Commission regarding the time worked and the compensation of the 310,000 employees included in these classes in July, 1921, shows that in that month they received $2,181,404 for time paid for but not worked, and that every single class of them received some of this money.

The misrepresentations of facts contained in the answer made to the dissenting opinion were sufficiently indefensible. But this was not the worst of the matter. A statement headed "From the Railroad Labor Board," regarding the new rules established was given to the press, which said: "These two changes in the rules are expected to save the railroads many millions of dollars, any exact estimate being impossible owing to fluctuations in business and traffic conditions. Railroad critics of the national agreements, in past hearings before the Railroad Labor Board, contended that these two rules cost the roads great sums, even hinting at amounts in excess of $50,000,000, but experts attached to the board say that $15,000,000 is a conservative estimate." As a result of this statement being given to the press it was heralded all over the country that the board had made changes in the rules which would save the railroads from $15,000,000 to $50,000,000.

Soon afterward Samuel M. Felton issued a statement showing that the board's own statistical department had estimated the savings that would be made at only $4,823,524.84. Only a short time ago a statement was issued by an employee of the board estimating that changes made in the rules in the shop crafts agreement with the employees would save the railways $50,000,000 a year and this was also widely published. Subsequently, R. M. Barton, chairman of the board, said: "The statement referred to was not made by nor authorized by the board. We have no means of knowing with accuracy what the saving will amount to."

The Railroad Labor Board is a government body whose members represent railway employees, the railroads and the public. Its usefulness will be determined, in the long run, by the extent to which it deserves the confidence of all these parties. It cannot gain or hold, much less deserve, such confidence unless its members make much greater efforts to learn the facts bearing on the questions they are dealing with, or to stick to the facts after they have learned them, than they did in the instances mentioned.

Why Two Specifications for Steel Railway Bridges?

DURING THE LAST 20 years the specifications for steel railway bridges adopted by the American Railway Engineering Association have come to be accepted as the standard guide for the design and construction of steel bridges on American railways. For this reason, railway engineers concerned with bridge design now find themselves in a rather confused state of mind when they receive copies of a specification prepared by the Special Committee on Specifications for Bridge Design and Construction of the American Society of Civil Engineers. Except for major changes in three or four paragraphs, the new specifications for design are almost identical with the latest draft of the A. R. E. A. specifications adopted in March, 1920. The two specifications are so nearly alike in form and substance that it is exceedingly difficult to understand why it was necessary to issue the later instrument under the sponsorship of another society.

With a record of 20 years of useful work the Committee on Iron and Steel Structures of the American Railway Engineering Association has come to be recognized the world over as the leading authority on steel railway bridges. Not only are its specifications in general use here but even in countries as remote as India its work is given a great deal of consideration in the development of similar rules. Because of this, the similarity in the specifications of the two societies, together with a duplication of words in the names of the two organizations, can but result in an unfortunate confusion.

It is conceded that the A. R. E. A. specifications are not

perfect. Some engineers are far from satisfied with certain features of the rules of design in their present form, chief among which is the column formula. The method of determining the required section of the compression flange of plate girders has also been criticized, and a few bridge engineers have been disappointed because the specifications in their present form do not provide for the proportioning of bridge members for maximum loadings and maximum stresses. It is in reference to these specific features that the American Society's specification differs in substance from the A. R. E. A. instrument. One of these, the column formula, the new specification offers three alternative methods because members of the A. S. C. E. committee could not agree on any one of them. The modifications proposed by the A. S. C. E. specifications with respect to disputed points may comprise distinct improvements over the corresponding requirements in the A. R. E. A. specifications. Nevertheless, we believe that such improvement may be accomplished far better through action by the committee responsible for the original specifications than through the agency of some other organization. That such changes or improvements may be forthcoming is evidenced by the fact that the report of the Committee on Iron and Steel Structures for consideration at the next convention of the American Railway Engineering Association offers a new formula for the design of compression flanges of plate girders which is identical with the one embodied in the new A. S. C. E. specifications.

The present rules for the design of steel railway bridges as drawn up by the Iron and Steel Committee of the A. R. E. A. are the result of a process of evolution. They represent years of work by the committee and many hours of discussion at the annual conventions. Through this process, they have undergone a gradual improvement and will continue to do so through the combined efforts of bridge engineers representing the railroads and other interests vitally concerned in this work. Any benefits to accrue from independent efforts on the part of others will be largely neutralized by unnecessary and confusing duplication.

Face the Problem Squarely

THE TRANSPORTATION ACT requires the Interstate Commerce Commission to determine from time to time what net return the railways as a whole should be allowed to earn. It is required in doing this to consider the country's need for adequate means of transportation. The law makes 5½ to 6 per cent the measure of a reasonable net return only until March 1, 1922. Therefore, the commission must again soon say, if the law is not changed, what return it believes it is reasonable and in the public interest to let the railways have.

It is to be hoped that in passing upon this question, the commission will squarely face the railroad problem as it actually is. Although that problem is being discussed by many persons and dealt with by many government bodies, almost nobody is facing it squarely and discussing or dealing with it on its merits. Continued paltering with it will cause disaster, not only to the railways but to every class of business interests and every class of people in the country. The *Railway Age* can see as clearly and has recognized as frankly as anybody the improvements in the railroad situation which have occurred within recent months. The efficiency of labor has improved, operating costs have been reduced, net return has increased and expenditures for equipment and improvements have been partially renewed.

But these things do not solve the railroad problem, or necessarily bring a real solution of it nearer. The railroad problem will be solved only when the public and the government decide finally to do one of two things and then act accordingly. One solution of it would be the adoption of government ownership. It would be a bad solution, but it would be a solution. The only other solution possible is the definite and final adoption of a policy of allowing the railways under private ownership to earn an average net return, in good years and in bad, sufficient to enable them to improve and expand their properties so that they can handle all the traffic offered to them with economy.

Whatever might be true under government ownership, it is plain that under private ownership and management there never can be any solution of the railroad problem consistent with the public welfare unless the railways are allowed on the average, year by year, to earn relatively as large net returns as are earned in other businesses. Government regulation may decide that the railways, like other industries, may earn large profits in good years and small profits or none in bad years. It may decide that in good years the railways must be content with smaller profits than those earned in other businesses and in bad years will be allowed to earn larger profits than are earned in other businesses. One or the other of these policies it must adopt, however, if the railroad problem is to be solved under private ownership.

Upon the net return the railways are allowed to earn always must depend the amount of new investment they can make in their properties. Upon the new investment they can make must always depend, in turn, both the economy and adequacy of the service they can render. They cannot in the future effect economies in operation and make reductions of rates as in the past, unless they can make large capital expenditures as in the past. They cannot increase the amount of service rendered by them in the future as in the past, unless they can make large capital expenditures as in the past.

Facts such as these have been theoretically recognized but actually ignored in all past regulation of the railways. They have been regulated as if it was to the public interest to reduce and limit their net returns as much as the courts would not hold confiscatory. The facts regarding railroad development under this policy of regulation are indisputable. The development of the railways has steadily declined. This decline did not begin within recent years. It began more than ten years ago and has continued at an accelerating rate ever since.

Both the fact, and the main cause, of this rapid decline of railroad development were recognized by the public and Congress when the Transportation Act was passed. It was owing to this that the rate-making provisions of the Transportation Act were adopted and that a large advance in rates in 1920 was willingly conceded.

Now, however, a great part of the public and of public men are advocating not merely a return to the policy of regulation which formerly prevailed, but the adoption of a more unfair and dangerous policy. They are insisting upon reductions in rates in entire disregard of the fact that in the past the railways did not earn as large profits as were made in other industries, that the net return they have earned under the Transportation Act has been only one-half as large as that act virtually promised them, and that to make immediate large reductions of rates would completely wipe out the present net returns. They are advocating repeal of all those provisions of the Transportation Act which were intended to assure to the railways a better opportunity to earn reasonable net returns and at the same time favoring the retention of all the provisions of that act which impose upon the railways increased restrictions and burdens. They would repeal the rate-making provisions but leave the railways burdened with the present system of regulation of the wages and working conditions of their employees which, at a time when they are earning an inadequate net return, is forcing them to pay higher wages than are being paid to similar labor in any other industry. Even the Interstate Commerce Commission is yielding to this pressure for unfair

and destructive regulation. It is ordering large reductions of rates in spite of the fact that the railways never have earned and are not earning now the net return that the Transportation Act requires the commission to let them earn.

The demands being made for reductions of rates and for changes in the Transportation Act express a mania regarding the railroad question comparable to past manias in this country regarding fiat paper money or free silver. Formerly, millions of our people, including many regarded as intelligent and wise, advocated legislation to depreciate the country's currency as a sovereign means of alleviating the effects of panics and industrial depression. Now, literally millions, including many regarded as intelligent and wise, advocate wholesale reductions of railway rates and the adoption of unfair railway legislation as the main remedy for present business conditions. They proceed on the remarkable theory that the way to improve business is financially to ruin and prevent revival of the development of the railroad industry. The present prices of most kinds of commodities are relatively higher than the railway rates on them, and yet the very producing and distributing concerns that are charging these prices, and which have made much larger profits than the railways for years, are contending that the restoration of normal business conditions demands, first of all, immediate reductions of railway rates.

Perhaps the Interstate Commerce Commission, in determining what return the railways shall be allowed to earn in the future, will be controlled by the present railway mania. Perhaps, if it is not, Congress will deprive it of the power to determine the net return that they may earn. We hope neither of these things will occur, although history shows that such things are quite possible. The railroads could then appeal to the federal courts and get some protection there, but in the long run appeals to the courts, however successful, will not solve the railroad problem. It will never be solved under private ownership, unless Congress and the Interstate Commerce Commission, as a deliberate public policy, decide that the railways must be allowed to earn adequate net returns and shall then consistently act in accordance with this decision. Government regulation of the railways in the past has been a failure and worse than a failure because it has been consistently predicated upon the false economic theory that the railroads should be restricted to the smallest net return that the courts will not hold confiscatory. The application of this theory has slowed down and finally stopped railroad development. Its continued application will forever prevent an adequate revival of railroad development, and that would be worse than government ownership itself.

New Books

Life of George Westinghouse. By Henry G. Prout, C. E., A. M., LL. D., 375 pages. Portrait frontispiece and eight other illustrations. Size 6 in. x 9 in. Bound in cloth. Charles Scribner's Sons, New York. Price $2.50.

George Westinghouse was a great man. He was a genius, but a good deal more than that. He developed his own and others' inventions and was a business executive as well as an engineer. Above all this he was a gentleman, associating always with worth-while people, and benevolent to his employees because that was his nature, not merely because it was "good business' to take an interest in their welfare. His pre-eminence as a noble citizen is indicated by the very lines of his portrait, and readers of this book who are unacquainted with his career will be charmed to see how the varied acts of his life, as here narrated, confirm the impressions which they will gain from this picture.

And Colonel Prout has made a great book. Chronological treatment of the subject, as a whole, was out of the question, for Westinghouse left no systematic memoranda and but few letters; and so the author, in a dozen chapters, has given, separately, a condensed history of each of a dozen careers, almost any one of which would be enough to make a man distinguished. The chapter introducing these, with two other chapters at the close, contain the distinctively "human interest" part of the story, though there is human interest everywhere.

Colonel Prout is not only a scholar, he is one of the most accomplished writers in the field of engineering, and a discriminating observer. Adding to this his own acquaintance with many of the topics dealt with, and his years of association with Westinghouse himself, one may reasonably expect a thoroughly illuminating narrative. This expectation is not disappointed. The reading public is fortunate in having the benefit of such an unusual combination.

Railroad men who shortsightedly have thought that the fame of Westinghouse rested on the air brake alone will find this book an eye-opener. The air brake was, indeed, the great outstanding mechanical feature in the railroad world from 1869 to 1889, and that alone served to put Westinghouse's name alongside of Stephenson's; but Westinghouse had a great career after that. The biographer classes his work in developing alternating electric current for the manufacture of power as at least of equal importance. In three other fields—natural gas, the turbo-generator and electro pneumatic apparatus for signaling—Westinghouse did a prodigious amount of pioneer work.

The candor of the author is always in evidence, and the great things which glorified the name of Westinghouse from a hundred different angles are not allowed to obscure the truth necessary to make an honest narrative. Mistakes and reverses are recognized with almost Scriptural fidelity. Another point calling for frank treatment was the question of recognizing the work of the "large group of able, loyal and devoted assistants which Westinghouse attached to himself," these including brilliant and constructive organizers, administrators, executives and engineers. Of these a few exceptional names are mentioned, but as regards the list as a whole "the committee (mentioned below) and the editor regret that it is not practicable to enter upon the delicate task of telling what these men did."

The American Society of Mechanical Engineers is primarily responsible for this book, Messrs. Scribner working in co-operation with a committee of the society, of which Charles A. Terry was chairman. The author also gives, in the preface, the names of 18 other men who contributed material and advice; in short he has employed all the resources of the experienced editor, with a purpose of making a book of which every paragraph should be faultless.

The main chapters, as above noted, are the first, 17th and 18th. The titles of the others are: the air brake; friction draft gear; a general sketch of electric activities; the induction motor and meter; rotary converter; the Chicago World's Fair; Niagara Falls; electric traction; steam and gas engines; the turbo-generator; signaling and interlocking; natural gas; various interests and activities; European enterprises; financial methods, etc. The lighting of the World's Fair at Chicago, in 1893 and the epoch-making work at Niagara Falls in 1889, and the following years—where now there are hydro-electric plants with an aggregate capacity of 500,000 h.p.—are among the most absorbing stories in the book.

In an appendix devoted to some description of the numerous patents taken out by Westinghouse, eight pages are required for a simple index, one line to each patent. In 11 years, from his 34th year to the end of his 44th, Westinghouse took out 134 patents, an average of more than one each month; and at the same time he was stimulating and directing the work of many other inventors. Another list, filling two pages—a single line to each item—gives the names of the Westinghouse associated companies, chronologically arranged.

Letters to the Editor

[*The* RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about* 250 *words—are particularly appreciated.*]

The Automatic Train Stop Problem

NEW YORK.

TO THE EDITOR:

What are the railroads to do? The Interstate Commerce Commission tells them that certain sections of their roads must be equipped with automatic train stops; leaves the roads to select apparatus without any practical advice from any government source as to type or kind, and then gives warning that every last detail will be subject to approval by the Bureau of Safety. Isn't that a pretty crude and hasty command? One would think that after reflecting on Section 26 for 21 months, those eleven commissioners could evolve something more sane than this half-baked proposal.

And the public is very lenient in calling for an accounting to cover only 21 months; for this problem has been before the Washington authorities ever since President Roosevelt set the ball rolling in 1906. However, if the infliction of a slight bodily injury on a popular member of the President's cabinet in a rear collision of passenger trains can arouse the commissioners, it behooves us to ask no questions; it will not be the first time that a long period of more or less futile discussion has been ended by a trifling accident.

Perhaps you may think I am only a fault-finder; that, like some railroad presidents, I only wish to throw the whole responsibility on the commission while, I myself, seek to do everything possible to block the wheels of progress. That is not the case. I simply wish to ask the question with which I started; I am disappointed that you, in your editorial of January 21, merely push the whole perplexing mess farther into the future. The commissioners evidently know that this is a troublesome question and they mean, no doubt, to avoid burning their own fingers; and so the question remains, What are the railroads going to do? WALL STREET.

[Holding no brief for the railroads we cannot tell what they will do. They themselves will tell, at Washington, no doubt, within a few weeks. Railroad managers, however, are much like the courts, in having great regard for precedent, and it may be expected that their first move, in seeking to find an automatic train stop which will satisfy the Interstate Commerce Commission, will be to review what has been done already in that line. Our correspondent may be interested in the list, printed last week, of train stops which are already in use, or which have been tried with more or less success.—EDITOR.]

The Most Economical Freight Train Speed

ST. LOUIS, MO.

TO THE EDITOR:

The article on page 1273 of the issue of December 24, 1921, entitled "Economic Speeds of Freight Operation," is very interesting in so far as the data contained therein apply to the various speeds, train loads and production in gross ton-miles per train hour; however, the same thorough study that was given the foregoing factors appears to be lacking in that portion dealing with "Costs." The "Average Cost per Gross Ton-Mile," in the table on page 1274, was computed on the basis of an assumed average cost ($14.50) per train hour, this same average being used for each speed whether it be 5 or 29 miles per hour. It is inferred that this average cost embraces wages, fuel, train supplies and expenses, locomotive supplies and expenses and probably enginehouse expenses. If such is the case, exception is taken with respect to the cost data contained in the article for the following reasons:

The average cost per train hour of a single freight train varies with the speed of the train. As an example, a freight train moving continuously between two terminals 100 miles apart, at an average speed of 12½ miles per hour, will cover the distance in 8 hours. The same train moving continuously at a speed of 25 miles per hour will cover the distance in 4 hours. The wages of the train and engine crew would be exactly the same at each speed. The cost of train supplies and expenses, as well as locomotive supplies and expenses, would also be approximately the same at both speeds. There would be no variation in enginehouse expenses. There would be some variation in the cost of fuel, but the amount would probably be slight. Therefore, the average cost per hour of the train moving 25 miles per hour, would be approximately double the average cost per hour of the train moving at the slower speed.

Assuming that it was practically possible to move freight trains continuously at stated speeds and using the Gross Ton-Miles per Train Hour at various speeds, as shown in the table on page 1274, it will be found that greater economy will be obtained at a speed of 12½ miles per hour than at a speed of between 17 and 18 miles, as stated in the article.

As proof of this, it is safe to state that the total cost of a 100-mile run would be almost the same at 12½ miles per hour as at 17 or 18 miles per hour. At the speed of 12½ miles per hour about 95,004 gross ton-miles (see table on page 1274) would be produced per hour for a period of 8 hours, or a total of 760,032 gross ton-miles; at the 17-mile per hour speed about 110,551 gross ton-miles (see table on page 1274) would be produced per hour for a period of 5.9 hours, or a total of 652,251 gross ton-miles. From this it is readily apparent that the slower speed would be the more economical for the reason that 107,781 more gross ton-miles would be produced thereby and at approximately the same cost.

A. E. LONG,
Statistician for Chief Operating Officer, M. K. & T. Lines.

American Railway Men in Asia

CHICAGO.

TO THE EDITOR:

When Charles R. Crane passed through Chicago recently on his return from China by way of Siberia and Russia he said of the American railway men in Asia: "My journey was facilitated by the kindly offices of the American engineers under John F. Stevens and Col. B. O. Johnson, the railway experts, who still maintain their headquarters in Harbin. Their influence is to be felt the whole length of the Trans-Siberian Railway, where the Russians have the best of feelings toward America because of the conscientious care that has been exercised by these forgotten Americans in desolate Manchuria. The tradition of the good work that the Red Cross and other organizations did there still exists. But these patient railway men have done most of all to keep up the good name of America in Siberia and Russia. They have been most sympathetic towards the Russians, both workers and bosses, and have made themselves most favorably known all the way to Moscow. They helped to make my journey secure and comfortable. Their contribution to the history of the times has been most dramatic and most valuable."

The Russian Railway Service Corps, as the American en-

gineers were officially known, numbered 216 men when it reached Asia in December, 1917. The old corps was sent home in May, 1920, after the triumph of the Bolsheviki. Col. B. O. Johnson, formerly of the Northern Pacific, was instructed to retain a small staff and remain in Harbin with Mr. Stevens. They then continued to function under the terms of the inter-allied agreement, which is expected to retain its life until the last allied (Japanese) soldier leaves Siberia. Col. Johnson retained only three men out of the original engineers, but he then proceeded to organize some American-trained Chinese engineers and presently railway affairs in Manchuria and eastern Siberia were moving along very well.

Then began the most interesting developments of all. The absolute breakdown of Russian authority in the Far East forced the Russians into a relationship with the Americans which has become closer in the last 18 months. The Russians learned to trust the Americans. The Americans pay no attention to Russian politics, knowing all, reds and reactionaries alike, only as Russians. The Russians no longer even talk their politics to the Americans, as the latter have insisted that they are not interested.

"I have grown very fond of the poor old Russian," writes one of these Americans now in Harbin. "He has had one —— of a time. He is peculiar, and all that sort of thing, but since I have been able to talk to him in his own language and have got under his hide I sure like him. And things are looking up with him. This is Russia's hard winter. You are going to note a very rapid evolution of Bolshevism towards a practical working democracy in the next 12 months. Russia's recovery will be very rapid. Russia's wealth is in her soil. She had only about 45,000 miles of railway and little manufacturing. A few thousand tons of well selected repair parts would make a wonderful change in her transport. Her track is better than that in America, despite her troubles."

The improvement in the Chinese Eastern has been enormous. For the benefit of the foreign colony in north Manchuria a time table in English has been prepared showing arrivals and departures between Vladivostok and Manchuria station, 1,608 versts away. Dining cars and first, second and third-class sleeping cars are now run regularly. Trains are electrically lighted throughout. It is hoped soon to have a regular service between Vladivostok and Irkutsk.

PAUL WRIGHT.

A Difference of Opinion on Water Treatment

CHICAGO

TO THE EDITOR:

I have read with interest the article by C. R. Knowles in the issue of November 12 and the subsequent communications on the subject of "The Interior Treatment of Boiler Waters." As I am an "exterior treatment man" I would not have felt competent to enter into the subject if it had not been for the letter by C. H. Koyl, which appeared in the issue of December 24.

For about 20 years I have been actively engaged in the design, construction and operation of water treating plants. My experience covers more than a thousand plants treating more than half as many waters and ranging in capacity from several hundred gallons to several million gallons per day. As a result of this experience I am firmly convinced that exterior treatment is the best method we have and that unless something as yet unknown is found, much more than the 50 per cent of the boiler waters referred to by Mr. Knowles will ultimately be taken care of that way.

If we take the figure of 6 per cent as being approximately correct for the proportion of water needing treatment that is now receiving it, or if the proportion is twice as great, it will take many years to install plants to take care of the balance, even if the money were immediately available—which it is not. This being the case, it seems to me not only proper but very desirable that there should be a discussion of other means that can be used under present conditions. From the article published and from other sources I gather that with reasonably proper use, compounds—both anti-scale and anti-foaming—do decrease certain expenses, avoid or reduce certain troubles and in other ways produce results of which the benefit exceeds the cost. The cost per pound or per other unit may be, and I understand is, greater than for exterior treatment, but if they pay their way and leave a balance, what valid argument is there against using them until something better can be done?

So far as they relate to this aspect of the situation, I cannot take at all seriously the committee pronouncements made 50 years ago, and quoted in the article printed in your issue of December 24. There is a proverb that "the good is the enemy of the best," meaning that we are pretty apt to take things somewhat easily as long as we get along pretty well; but it seems to me that to turn this around and make the best the enemy of the good, to argue that we should do nothing at all until we can do the best is rather stretching things. I suspect that if those committees could be re-assembled they would be found to be made up of rather practical fellows who would gladly use any means available and that they would be somewhat surprised at the rigid construction put on their words.

If compounds may be used, and Mr. Koyl himself approves of them to an extent, it is impossible to have too much information about them and a series of articles or a to-the-point discussion in which results and methods of use are brought out is apparently needed, and I hope it will be continued. If he had said that to install adequate treating plants is a step forward, I would have agreed, but certainly to try to do more intelligently something that is useful and that we are already doing is not "a step backward."

Another statement in Mr. Koyl's article that I cannot agree with is that "20 years ago it used to be said that 'an increased tendency to foam is characteristic of all water treated with soda ash'." This was true 20 years ago and is now so far as relates to using a water treated with soda ash without separation of the precipitate, but apparently the reference is to the use of soda ash in a water softening plant. With possibly an occasional exception so rare as not now to be remembered and very likely due to some other and unusual condition, my experience has been that water after softening is less apt to foam than before, whether soda ash is used in the treatment or not. Likewise this has been the experience of all others so far as I ever heard. It is a common experience for boilers to show an increased tendency to foam for a time after the use of softened water is begun. This, however, is laid to the increased amount of mud present from the softening and disintegration of the old scale and it stops when the boilers are clean.

What is meant by the reference to the sludge being left, not by soda ash but by lime treatment, is not clear since the addition of soda ash in amount equivalent to the permanent hardness will commonly cause no precipitation in water without heating or the addition of lime also, whereas lime without soda ash will quickly cause precipitation. When both are used and the reaction of each one produces calcium carbonate, how can it be told which portion of calcium carbonate is left?

Mr. Koyl has, however, done a real service in directing attention to the part played by suspended matter in causing foaming as against that of dissolved solids. While this has been known for a long time it is frequently overlooked or not given the attention it deserves. We have all seen a boiler that had been steaming quietly, suddenly start to foam vig-

orously on the addition of turbid water. Of course, every boiler in service contains solids both in suspension and in solution and both play some part in every case of foaming, but as Mr. Koyl points out, the amount of dissolved solids may be very greatly increased if the amount of suspended matter is kept down.

It should be noted also that while the effect of dissolved solids in causing foaming is roughly in proportion to the amount present, regardless of what the soluble salts are, this is not the case with suspended matter. With the latter the effect is more nearly proportional to the number of particles present than to the weight; in fact after particles reach a certain maximum size they may have very little effect at all. This is the reason why substances like magnesia and silica which precipitate in very fine form, have an effect all out of proportion to the amount present as compared with the effect of some other substances.

It is a realization of this desirability of eliminating suspended matter as far as possible that has led to the use of sand filters in much present day water softening work. Not only is clear water obtained in this way but an additional grain or so of half-suspended or colloidal matter that will not settle out may also be removed. Something of the same result may be secured by the use of coagulant such as sulphate of alumina or sulphate of iron in connection with the treatment, but it is necessary to use more than with filters which means increased expense and increased solids in the water. There is no essential difference between clarifying a water naturally turbid and one that has been made turbid by treatment; very much the same kind of materials and very much the same conditions of suspension are present in both cases. It would seem advisable therefore to take advantage of the experience in clarification gained in such fields, for instance, as municipal supplies, rather than to go through again the experiments and arguments long passed by. All experienced water works engineers use sand filtration as the most dependable and most economical means of getting a satisfactory supply, sedimentation basins being used to first get rid of the heavier suspended matter. This is exactly what is now being done by most of those manufacturing water softening equipment and since history tends to repeat itself it may be expected to become standard practice.

In one place Mr. Koyl makes the statement that "all experienced men say 'water softening consists of adding lime and soda ash to the water which is then *stirred* until chemical reaction has taken place'." This is contrasted with a statement quoted from Mr. Knowles that "water softening consists of adding lime and soda ash to the water which is then allowed to stand until chemical action has taken place." I might stop with the suggestion that water softening does not "consist of" either one or the other but that both refer to methods or steps that are used in one or another water softening plant. Every or nearly every concern making water softeners has made experiments, both laboratory and field, to ascertain what could be expected from agitation for different periods and the results are no secret to those in the business. Perhaps the outcome of these experiments is best shown by the fact that not a single concern manufacturing such apparatus now uses prolonged agitating, nor does any one advocate it so far as I know except Mr. Koyl and those who have been subjected to his influence.

Under some conditions or with some waters the effect of excessive agitation is harmful in that the precipitate formed will be broken up to such an extent that it will scarcely settle at all, so that the hardness of the water increases. Perhaps there is not actual re-solution but the establishment of some of the precipitate in a colloidal form so that it acts as though in solution. This harmful effect of prolonged agitation can be entirely overcome by the use of a coagulant such as sulphate of aluminum or sulphate of iron and this is what Mr. Koyl does. Except for the cost of the larger amount of coagulant used and the increase in dissolved solids, there is no objection to the process but within my knowledge every result claimed for it has been produced, and I think even better results obtained, without any agitation at all except for perhaps a few minutes to secure mixing.

W. H. GREEN,
Vice-President, International Filter Co.

The Motor Truck and the Railroad

CHATHAM, N. J.

TO THE EDITOR:

The editorial entitled "Unfair Motor Vehicle Competition which appeared in your issue of December 10 has a double interest for me as I am both a railroad employee and a resident along one of the motor highways now in process of reconstruction in New Jersey. The position of the carrier of heavy freight motor traffic on our highways is indeed enviable when it may charge what rates and pay what wages it chooses, unhampered by Interstate Commerce Commission or Labor Board and under no expense of construction or upkeep of its roadbed or right-of-way.

Recently the foundation of our house became so weakened by the constant jarring of the heavy trucks which speed past our door that we were obliged to have it reconstructed to preserve a structure which has stood since before the Revolution. Unless we attempt to hold up some of these trucks there is small chance of our collecting for the damage they have caused, but our taxes will undoubtedly be higher next year to pay for the new pavement now being put in. When the machine which was engaged in ripping up the old pavement nipped off the branches of some of our shade trees and damaged the remaining foliage by misdirected steam, we registered our annoyance and were comforted with the information that such slight inconvenience should be borne cheerfully, considering the great public improvement under way. In contrast, a few years ago the Lackawanna railroad, which serves this part of New Jersey, embarked upon a program of eliminating its grade crossings through this section. In making the embankments the railroad was obliged to take small portions of the adjoining property which had previously been devoted to the cultivation of burdock weeds, ashes and tin cans. It was remarkable how prosperous the people soon became who had been deprived of their property for the public benefit in this case.

So much for my private grievance as one taxed for the support of a species of transportation in competition with the one which pays my salary. Of course there is no use in setting one's self in the way of progress to be run over by it. It cannot be denied that motor trucks can do things which a railroad train cannot do as effectively. Strikes and the war have opened our eyes to new uses for motor vehicles as well as for aeroplanes. Whether further development of the aeroplane and motor transportation, aided by the Lincoln highway idea, will relegate our much harried and regulated railway transportation to the level of our present canal transportation is a question for those who control the purse strings of the railroads, notably the Interstate Commerce Commission and the investing public. Already railroads are reducing their mileage wherever possible.

I cannot help wondering why transportation is not more often considered broadly as transportation, the means of getting from one place to another by whatever method employed, whether railroad, truck, aeroplane or trolley car. Instead of railroad companies, why should we not have great transportation companies, unrestricted as to method of locomotion, which might convey the public and its freight from Waterford, Maine, to Hoquiam, Wash., by any combination of types of transportation which would do it most expeditiously and economically. Does not the way out for the railroads as well as the public lie in that direction? G. H.

New Haven Using Motor Cars on Branch Lines

Important Advantages of New Passenger Equipment Are Flexibility and Low Operating Cost

ANYONE who examines the map of the New York, New Haven & Hartford is at once impressed by the numerous short lines and the many junctions. The lines of this company form a network over southern New England, traversing both highly developed industrial sections and rural districts. The area covered by the road is small and therefore outside of the main passenger lines there are few through passenger routes. Most of the territory through which the New Haven runs is rather densely populated so there is considerable passenger traffic available, but the short lines make a satisfactory arrangement of passenger train service and locomotive runs almost impossible. To make conditions still more difficult private automobiles and motor buses maintain keen competition for the business and therefore the branch line passenger traffic is often a source of expense instead of a revenue earner. Under these circumstances the railroad has found it advisable to restrict passenger train service on many lines to two trains a day.

Mack Rail Car, Used in Local Passenger Service on the New Haven

The officers of the New Haven made a careful analysis of this situation to determine the most economical method of handling branch line passenger service with the primary object of reducing the cost of operation. It was felt that it might be possible to reduce operating costs on some of the lines where there is only light traffic by running small unit cars. The study of the problem led to the conclusion that the usual three-car train was unsuited for the existing conditions and that the service demanded equipment which was more economical and also more flexible. This decision led to the design of gasoline-driven passenger cars of which three have now been received. Two are in service between New Haven, Conn., and Derby, and Tremont, Mass., and Fairhaven. The third will soon be assigned.

The cars combine many of the characteristics of automotive and railroad equipment as will be noted by reference to the illustrations. The motive power is furnished by the Mack truck engine, made by the International Motor Company, New York. This motor has four cylinders, each of 5 in. diameter and 6 in. stroke. The power rating according to N. A. C. rules is 40 hp., but the motor actually develops a maximum of about 60 hp. The motor is located under a hood placed ahead of the car body and power is transmitted by a gear drive to the rear axle which is of the bevel gear type, the gear ratio being 4.29 to 1. The axle has no differential, and drives two 40 in. wheels with cast steel centers and rolled steel tires. The transmission, of the selective type, gives four speeds forward and four in reverse with direct drive in high speed.

The leading truck is of the four-wheel type with 20 in. diameter wheels. The axles, like those of the driving wheels, run in Timken roller bearings. The truck has a swing bolster supporting leaf springs which in turn carry the underframe. At the rear the frame is also supported on leaf springs which are slung under the rear axle. In order to reduce vibration and deaden sound, rubber blocks are interposed between the ends of the springs and the car underframe.

The cars are braked by the Westinghouse Air Brake Company's motor vehicle brake. The pressure for this device

is taken from the compression in two of the engine cylinders and is stored in two small chambers on either side of the car. A brake valve mounted in front of the driver's seat controls the application directly and the release through a quick release valve installed close to the brake chamber. The braking force is obtained through two dished plates between which is placed a heavy rubber diaphragm. The diaphragm is connected to a push rod which transmits the pressure through the brake shoes to the wheels. In addition an emergency hand brake is provided which acts on the rear wheels only and is operated by means of a wheel on the steering column.

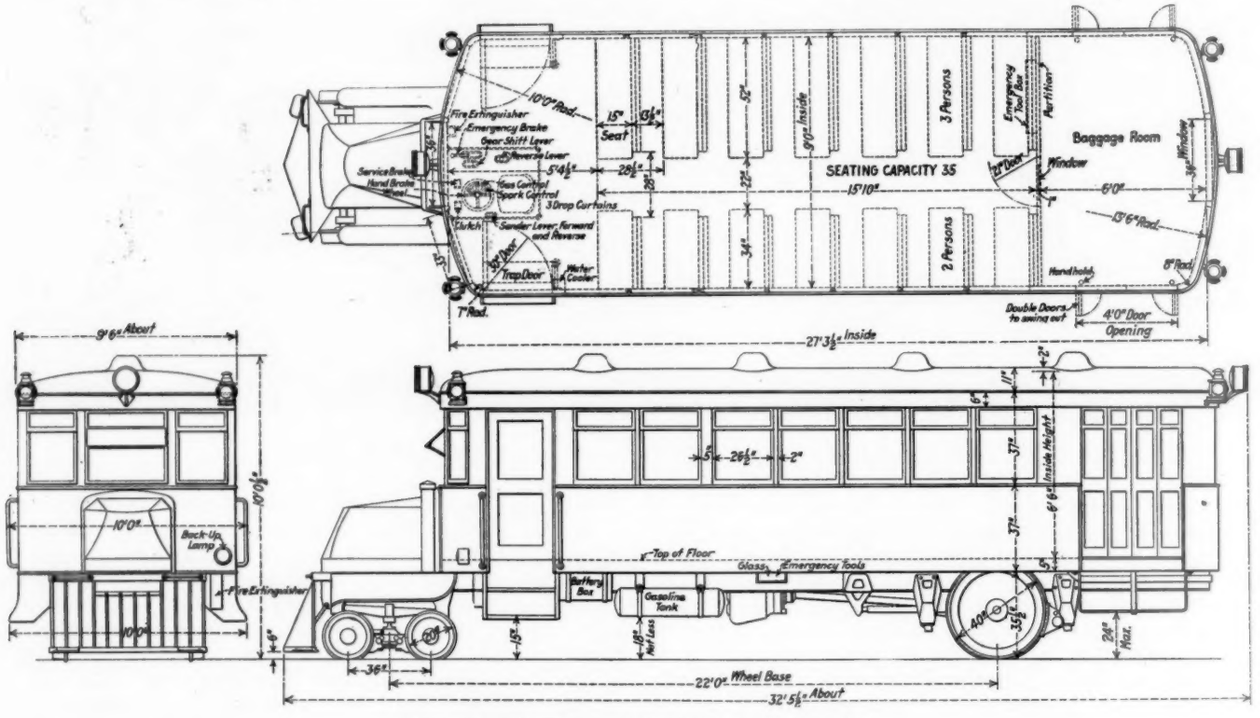
The body of the car has seating capacity for 35 passengers and baggage capacity of 1,000 lb. The body is 27 ft. 10 in. long and 9 ft. wide inside the window sills, with a height of 6 ft. 6 in. from floor to ceiling. The maximum width at the steps is 9 ft. 8 in.; the width at the eaves, 9 ft. 7 in., and the maximum height above the rail, 10 ft. 5 in. The car weighs 23,400 lb. fully equipped, or about 30,000 lb. when filled to capacity.

The body of the car was built by the Osgood-Bradley Company, Worcester, Mass. The frame is of wood and steel covered with No. 18 openhearth steel plates. The flooring in the passenger compartment is 13/16 in. yellow pine, with maple floor mat strips extending down the aisle and to the front entrance steps on both sides. In the baggage compartment the floor is 1⅛ in. thick. Under the flooring is a layer of hair felt insulation which is held in place by corrugated steel plates, No. 24 gage. The sides of the car also have a layer of hair felt which is covered with agasote. The roof is of tongued and grooved sheathing covered with canvas.

The inside width of the body is sufficient to provide space for five passengers across the car. For this reason two-capacity seats have been placed on the left side and three-capacity seats on the right side of the aisle. This reduces the length of the body, which is very desirable because it reduces the overhang beyond the rear wheels and cuts down the dead weight. The seats, which are made by Heywood-Wakefield Company, Wakefield, Mass., have pressed steel wall plates and pedestals and fabrikoid upholstery. The car body is heated by the exhaust from the engine which is connected to a special exhaust heating control valve on the muffler pipe. There are no heating pipes in the baggage compartment. The interior lighting is controlled by a New-

Interior View, Looking Toward the Rear

bold 12-volt miniature train-lighting system, 12 lights of 15 candle-power each furnishing illumination for the body. The exterior light consists of golden glow 9 in. headlights of 32 candlepower at front and rear with classification and marker lamps of 4 candlepower. Klaxon and Strombose horns are provided for warning devices; the Strombose horn being used for railroad crossing signals in order that the autoists will not confuse the sound with that of other road vehicles.



Plan and Elevations of New Haven Motor Car

In service the car maintains a speed of about 35 miles an hour on level track and has made 40 miles an hour. It

does not fall below 20 miles an hour on ¾ mile grades of 2 per cent.

One of the items of greatest interest in connection with the gasoline rail car is the cost of operation, but the limited experience with these cars does not make it possible to give a close estimate of costs. However, it seems certain that this type of vehicle will effect remarkable economies in wages, fuel, maintenance and fixed charges. The crew required to operate the New Haven car consists of two men, an engineer and a conductor. The gasoline consumption averages about ⅕ gal. per mile. The cost of maintenance is yet to be determined. Similar engines in motor truck service show very low repair costs and equally good results are anticipated in rail service.

The conditions on rail cars should be less severe than on heavy trucks. While the weight of the car is greater the grades are not as steep and the shocks due to uneven road surfaces are minimized. For these reasons it is anticipated that maintenance charges will be less than for trucks with the same motor. It is of interest to note that the railroad will not carry repair parts in its storehouse as the International Motor Company has a branch at New Haven.

Front End of Body, Showing Driver's Seat and Controls

The popularity of road motor buses augurs well for the success of the rail motor car, which operates far more smoothly and can safely maintain higher speeds. There is every indication that the service will be popular with passengers. From the railroad standpoint the advantages are many. Operating costs are reduced; the necessity for extensive terminal facilities are eliminated; in short, the car provides a flexible, economical unit that is just what the railroads need for handling branch line traffic.

WHY OLD RAILROAD TIES ARE BURNED.—Samuel Porcher, general purchasing agent of the Pennsylvania, answering critics who think that railroad companies should allow people to take old ties for fuel, says that not all of those taken out are burned. A considerable number are sold to persons living on or near the right of way, who buy them at ten or fifteen cents apiece; but this is practicable only where the ties can be delivered at a public crossing, or other point where they can be obtained safely by the users. The company cannot sanction the public going promiscuously over tracks and through yards to gather up old ties. Dealers in fire-wood do not want old ties. The ties are often dirty; or contain grit which might injure the saws used in cutting them. Their fibre is more or less crushed, so that they burn out too quickly. Efforts have been made to sell ties for wood pulp, for burning and sale of the ashes for fertilizer, and for manufacture into charcoal, but without success.

Correction

IN THE REPORT of the decision of the Interstate Commerce Commission in the hardwood lumber case, published in last week's issue, page 283, it was stated that the commissioners who presumably favored the majority report were Commissioners Aitchison, Cox, Esch, Hall, Lewis and Meyer, because the others signed minority reports. Our attention has been called, however, to the fact that on the date of the decision in that case, January 16, Mr. Aitchison and Mr. Hall were not members of the commission and not eligible to vote in the decision, as their appointments were confirmed by the Senate late in the afternoon and they were not sworn in until the following day. The report was made public on January 20.

Agricultural Conference Asks Rate Reduction

WASHINGTON, D. C.

IN ADDITION to a heterogeneous assortment of other measures designed to relieve the condition imposed upon the agricultural industry by a more rapid decline in the prices of farm products than in the prices of many commodities which the farmer buys, the agricultural conference held at Washington last week adopted recommendations for immediate reductions in freight rates, a repeal of the so-called "guaranty" clause of the transportation act and a restoration of the powers of the state railroad commissions to reduce rates without too much interference from a federal commission in case their orders happen to cause discrimination against interstate commerce.

These recommendations of the sub-committee on railroad transportation were adopted without much argument but suggestions that reduced freight rates might be made more possible of attainment by a reduction in the wages of railroad employees and coal miners and a repeal of the Adamson law encountered the denunciation of Samuel Gompers, who was a delegate to the conference and he succeeded in defeating those proposals in connection with a report of the committee on marketing. The fight was renewed, however, in connection with the report of the railroad committee and the report was adopted by the conference containing a recommendation insisting that "railroad corporations and railroad labor should share in the deflation in charges now affecting all industries," as "essential to the restoration of normal conditions in agriculture" and "to the welfare of the entire community," and appealing "to those in authority to take such action as may be necessary in order to accomplish that result." This was adopted over Mr. Gompers' vigorous protest and his motion to strike it from the report, after one of the farmer delegates had raised the question whether this was a conference of farmers or of the American Federation of Labor. Mr. Gompers insisted that labor had already been "deflated" as indicated by the large number of unemployed, but some of the farmer delegates made some pointed contrasts between the wages of railroad employees and the earnings of the farmer. The report as adopted is as follows:

"On the basis of present agricultural prices existing levels of freight rates on basic agricultural commodities constitute an excessive burden upon the agriculture of the country, and if long continued will result in re-locating much of our agricultural production with consequent modification of railroad revenues and revenue-producing centers.

"Wherefore it is recommended as follows:

"I. That the freight rates on farm products, live stock and the products of allied industries be reduced to the rates in effect August 25, 1920, and that the Interstate Commerce Commission put the above reductions into effect at once, and

further reductions as rapidly as reductions in operating expenses will justify.

"That the carriers be directed to readjust freight rates on other commodities as quickly as possible upon the basis of what the various classes of traffic will reasonably bear. That those rate relationships between producing districts and markets which existed prior to the application of general percentage or horizontal rate increases, which destroyed said relationships, unfairly increasing the advantages held by certain sections over others should be corrected, and the relationships should be restored as they existed prior to the war so far as conditions will permit.

"II. We believe that Section 15-a of the Interstate Commerce Act, containing the provisions as to the fixed amount of return that must be provided for if possible on the aggregate value of railroad properties, regardless of the economic conditions, is fundamentally unsound, and we recommend its immediate repeal in its entirety.

"III. The full powers of the state railroad commissions as they existed immediately prior to the federal control of railroads (except as to control and distribution of cars in interstate commerce) should be restored by act of Congress at the earliest possible date.

"IV. The railroads are seeking to fix a valuation upon their properties which will include the so-called land multiple, on the theory that if they had to re-purchase such lands today the cost of condemnation proceedings and damage to adjoining property would compel the payment of more than twice the present value of their lands. This theoretical basis would increase the present transportation burden of a return upon several hundreds of millions of dollars. We urge upon Congress the prompt passage of a law which will effectually prevent such a method of valuation.

"V. We are opposed to the many abuses that have grown up through violations of the principle of the long and short haul clause which requires that rates to intermediate points shall not exceed the rates between the most distant points. For many years the intermountain states were discriminated against by the charging of more for the short hauls than for the long hauls. This situation has been corrected, but today there is an effort to change this, and we earnestly recommend to the Interstate Commerce Commission that no change shall be made in the present adjustment.

"VI. This committee recognizes the urgent need of extensive and prompt additions to the refrigerator car equipment of the carriers, and the repairing or rebuilding of much of the present equipment to adequately and safely handle the perishable crops of the country. The committee, therefore, strongly recommends that the carriers give this question prompt attention; that as rapidly as conditions permit a sufficient number of new refrigerator cars be built and such part of the present equipment as is inefficient be brought to a state of efficiency by repair or rebuilding; that in determining the type of car to build, cars of less efficiency than the standard refrigerator cars as adopted by the United States Department of Agriculture and the United States Railroad Administration should not be built. That the same principle govern so far as possible in rebuilding.

"That the refrigerator cars be standardized as to essential construction to permit prompt and economical repairs and replacement of parts.

"VII. That we commend the Interstate Commerce Commission and the railway companies for their recognition of agriculture as the basic industry of the country and for their action in effecting certain general reductions in the freight rates on agricultural products.

"In conclusion, we insist that the railroad corporations and railroad labor should share in the deflation in charges now affecting all industries. This is essential to the restoration of normal conditions in agriculture and it is essential to the welfare of the entire community. We earnestly appeal to those in authority to take such action as may be necessary in order to accomplish that result."

The conference also adopted a committee report recommending an investigation by the Interstate Commerce Commission to determine the advisability of extending preferential export freight rates to agricultural commodities not now affected.

Hooper and Plumb Discuss Settlement of Labor Problems

Ben W. Hooper, of the Labor Board, and Glenn E. Plumb addressed the opening session of the annual meeting of the National Civic Federation at New York on January 30. Mr. Plumb appeared only as the representative of B. M. Jewell, president of the Railway Employees' department of the American Federation of Labor, and not to express his personal views.

The subject assigned to both speakers was the discussion of the Railroad Labor Board, whether it should be abolished, combined with the Interstate Commerce Commission, replaced by a general industrial court like that in Kansas or given power to enforce its decisions.

Mr. Hooper's opinions on this subject are rather generally known and were outlined in detail in his address before the New York Railroad Club on December 15, which was published in part in the *Railway Age* of December 17, page 1197. In brief, his contention was for making the decisions of the board mandatory by fixing penalties for violation of its decrees. This would make strikes illegal. Mr. Hooper contended, however, that such a provision would not penalize the unions unduly since with one exception they have obeyed all the board's decisions anyway, whereas the violations by the carriers have been, according to Mr. Hooper, "too numerous to mention." In his opinion the board has already justified its existence by the work it has accomplished. Furthermore, he objected to the proposal that wages and rates should be fixed by the same body on the ground that ability to pay cannot be treated as a primary consideration in fixing wages.

Mr. Jewell's paper, read by Glenn E. Plumb, outlined his objections to any form of compulsion in the settlement of disputes arising between labor and management. His belief was that the board is "unscientific in principle, uneconomic in theory and impracticable in operation." He said in part:

> Those who have acquired skill and knowledge in the industry fully realize that labor costs are not determined alone by the hourly or daily wage but are actually determined by the wage rate divided by the volume of output, so that it is quite possible to have a decreasing scale of cost accompanied by an increasing scale of wages. On the other hand, it is also quite possible to have an increasing scale of costs accompanied by a decreasing scale of wages. At some point, to be determined only by those who have the required intimate knowledge of the industry, is found a rate of pay which induces the highest degree of efficiency. Beyond this rate of pay, wages ordinarily should not rise unless accompanied by a corresponding increase in efficiency. Below this point, wages should not fall. The exact point on the scale can be determined only by the judgment of those most experienced and most skilled in the supervision of labor and the performance by labor of the duties which this service requires. Considering this to be the ideal to be attained, see how impossible it becomes to accomplish this ideal through a body organized after the manner of the Railroad Labor Board.

The underlying idea of the paper was apparently that the only solution for the labor problem was the admission of labor into the management of the carriers.

Mr. Hooper addressed the Boston Chamber of Commerce on January 27. His theme was the function of governmental supervision of the railways, particularly insofar as the Labor Board is concerned, and the success of such activity. He expressed himself as viewing with optimism the business outlook and predicted a reduction in rates.

General Testimony Before I. C. C. in Rate Case

Shippers Express Conflicting Opinions as to How Reductions, if Any, Should Be Made

WASHINGTON.

AFTER HEARING since January 19 the testimony of shippers of specific so-called basic commodities, most of whom urged reductions in freight rates approximating the amount of the increases made by the commission in 1920 in Ex Parte 74, the Interstate Commerce Commission on January 30 began hearing testimony on behalf of the public and shippers as to the general aspects of the case. Following the testimony reported in last week's issue, statements were made by witnesses on sand and gravel, brick, lime, cement, gypsum and asphalt, lumber and forest products and fertilizer and materials. While most of these asked for reductions in their rates, some of them only went so far as to say that if the commission determined that any reductions are warranted, their commodities should be given consideration and many said they were as much if not more interested in reductions in rates on coal and other raw materials as in the rates on their own products. The public or general testimony was to continue until February 4, after which there will be other commodity testimony and two days have been scheduled for railroad labor organizations.

N. I. T. League Favors Horizontal Decrease, if Any

The first general witness on January 30 was W. H. Chandler, president of the National Industrial Traffic League, representing also the Boston Chamber of Commerce and the New England Traffic League. The position of the league had been determined at the annual meeting in November, which Mr. Chandler said had a larger attendance than any previous league meeting, and at a special meeting in Washington on January 27, attended by some 200 of the 1,000 members of the league, at which resolutions were adopted "that if and when, in the opinion of the commission, freight rates and charges may properly be reduced, the reduction should be made in the same manner in which the advances were made in Ex Parte 74." The resolutions also expressed the opinion of the league that "the findings of the commission should be definite with respect to the question of general reductions so that all uncertainty with respect to this question be removed and that business men may make their commitments with some degree of certainty and stability." It was further declared that "the league is fully cognizant of the necessity for the carriers' revenues being adequate in every respect to insure proper transportation facilities and service in times of business prosperity and to support their credit; and also recognizes the imperative necessity as an aid to the restoration of normal business conditions, that the present high level of rates be reduced as soon as possible."

The league does not say, Mr. Chandler said, that there shall be reductions, but that if there are to be reductions, they should be general rather than placed on a few specific commodities, and in order to make rate reductions possible, he said, the commission should give the carriers moral support in their efforts to reduce wages. Mr. Chandler said he did not assume that the resolutions adopted represented the position of every individual member of the league. Many of the members had expressed their opinion in the testimony as to specific commodities, but there is a very heavy tonnage of commodities not represented by those who have spoken and a heavy tonnage moving on class rates. The position of the league had been expressed at the annual meeting and in addition a circular had been sent to the members asking which shippers wanted the league to represent them at the hearings and whether they shared in the views of the league. He presented some 200 letters which had been received, all except eight or ten of which endorsed the position taken in the resolutions and represented mainly the views of members who were not present at the meeting.

Mr. Chandler said he had frequently heard it stated that it would be most unfair if the commission should show preferential treatment to any class of business, that when the emergency in 1920 necessitated a radical increase in railroad revenues all shippers were required to bear their equal share of the burden and just as soon as it is possible to relieve the country of that burden in whole or in part, all classes of shippers should get equal relief. He had heard railroad officials say that the class rate structure should remain where it is because class rates have not borne their proper relation to commodity schedules. If this be true, he said, it is a sad commentary on the railroad experts who for many years have been building up the rate structure. If the relation is wrong, it should be handled before the commission in an entirely separate proceeding.

Reduction in Passenger Fares Not Asked

Commissioner Hall asked if the equality of treatment proposed should be extended to passenger fares. Mr. Chandler said that the league had voted only to ask the commission to adjust freight rates. Commissioner Hall remarked that if the position is sound that rates should be reduced by a reversal of the order in which they were increased, the passenger fares might be entitled to consideration because they were advanced in order to provide an additional increase in revenues after the wage order had been issued. Mr. Chandler replied that the general position seems to be that freight rates have more to do with business than passenger fares and many of his people, he said, are not dissatisfied with the passenger fares. Commissioner Aitchison asked if the witness was not asking preferential treatment for his people over others who may not ship freight but have to travel, to which Mr. Chandler replied that the league had not made any objection to any reduction in passenger fares. Commissioner Lewis raised the question of mileage books. Mr. Chandler said he had not heard of any chamber of commerce asking for mileage books. Certain organizations of commercial travelers, he said, have been very active in this demand, but he had heard of no other commercial organization that had expressed any interest in mileage books.

The Matter of Adequate Service

Asked as to how the reduction should be made so as to restore the relationship of rates, Mr. Chandler said he would instruct the carriers to go back to the base rates in effect at the time the 1920 advances were made and apply to those base rates a percentage increase which was less than the increase authorized at the time the emergency existed. Very material reductions, he said, have taken place in the price of many commodities which the carriers use, but cost of labor, one of the largest items, has not been adequately deflated. It is apparent that the carriers generally are paying more than is being paid for similar work in other lines of industry and it is obvious that the carriers are not being operated economically because they are paying more than the market price for labor. There is a general impression, Mr. Chandler said, that high rates are causing buyers'

strikes and that business would be very greatly improved if freight rates were reduced. Whether or not this be true, it is the very general impression that the uncertainty in the rate situation is a permanent factor in the present business situation. Mr. Chandler said that the statement made by railroad executives that the measure of the rate is of less importance than the character of the service, is far from accurate. Very frequently it is the freight rate that determines whether goods will be bought in one market or another and the executives apparently do not distinguish between conditions which existed during the war and those that prevailed before. While shippers are vitally interested in having adequate service, it is not correct to say they are more interested in freight service than in the general level of rates. He said he knew that the railroads are losing revenue because of their present high level of rates and that they do not appreciate it. He had been told by shippers that they were moving even low class freight by motor truck at a considerable saving and one big manufacturer, a member of his transportation committee, said he had not used the railroad on which he is located for a year.

Commissioner Aitchison asked the witness if there are any complaints now of railroad service. Mr. Chandler said: "They are not complaining; they are not shipping because the service is not good and the rates are high." He said that motor truck transportation has its disadvantages and if the railroads would give good service at reasonable rates the shippers would be glad to go back to the railroads. In reply to questions, however, he said that the criticisms of the service apply more particularly to short distance service under 50 miles. It seems to be a general theory on the part of railroad operating officers, he said, that l.c.l. freight cannot be handled at a profit. It was his belief that they formed this opinion during the war when they did not want to be bothered with it, but he pointed out that they must maintain an organization for handling long distance l.c.l. traffic and he thought it should be possible to handle additional units at reasonable rates.

Railroad Labor a Preferred Class

Returning to the subject of high wages, Mr. Chandler said that in his opinion one of the most beneficial things the commission could do, if it finds from the testimony that railroad labor has been made a preferred class, would be to come out flatfootedly and tell the people of the United States that from the evidence which has been submitted railroad workers are paid more than the prevailing rate of wages in the open market and that in its opinion the carriers should make further effort to reduce these labor costs. "I think it would be entirely proper," he said, "for this commission to say to the public that by reason of the failure of the Labor Board to deflate wages, the cost of conducting transportation is many million dollars more than it should be and that the railroads are not being operated economically so long as this situation exists."

Commissioner Esch asked if that would not be asking the commission to give advice to another body of equal dignity and authority within its own sphere as to what its position should be. He asked whether the league intends to file another petition with the Labor Board for a hearing on behalf of the shippers. Mr. Chandler replied that so far as he knew it does not intend to do so, but he declined to agree with the statement that the other board is of equal dignity and authority with the commission.

"I do not think any one thinks this," he said. "Something has got to be done. We have got to get wages down or the railroads have got to keep rates up. No one seems to have the moral courage to do it. The Labor Board has got to have a jolt. We thought it had one at the time that the strike was threatened, but one of its members began to temporize and balled things up."

No Progress in Twenty Years

As to other economies which the railroads might effect, Mr. Chandler said there is room for much greater supervision to prevent loss and damage claims and that the railroads are selling freight which has gone astray for almost nothing. He said the carriers have made no progress in 20 years in that direction and as to the simplification of tariffs, if they have advanced at all they have advanced backward. Commissioner Aitchison apparently took this as a criticism of the commission and asked whether he desired to propose amendments to its tariff circular. Mr. Chandler said it could not be done by amendments of the circular, but the basis of stating rates should be changed.

Mr. Chandler said that if the commission should show a receptive attitude he thought something could be done, but he thought the railroads or perhaps the commission rather than the league should take the initiative. Mr. Chandler also criticized the propaganda of the railroads for the purpose of trying to bring about heavier carloading, saying that the establishment of excessive carload minima has the effect of putting the small merchant out of business and he also said the carriers are not getting sufficient revenue under their contract with the express companies. Regarding statements by railroad officers as to the need for more equipment, Mr. Chandler said that the terminal and intermediate yards are congested "because cars are permitted to loaf" and that the available car supply would be materially increased if cars were kept moving steadily, not necessarily fast. In conclusion, Mr. Chandler said:

"We, therefore, respectfully urge upon the commission the vital importance of an early and authoritative announcement concerning the railroad situation. The public wants to be informed of the standing of the carriers and of their ability to bear substantial reductions and whether the commission will order reductions; in other words, what it can expect, so that business can be resumed. How much of a reduction, if any, shall be made is for the commission to determine. We do desire, however, to emphasize our belief that transportation costs must be reduced. We do not believe that the public will be content to continue to pay exorbitant freight rates in order that railroad labor shall be treated as a preferred class. In reply to a question as to what would happen if the commission should decide there should be no reduction, Mr. Chandler said: "Well, I guess we'd all go home and go to work."

F. H. Wood, of the Southern Pacific, asked Mr. Chandler if it was wrong for the railroads to make reductions during the last year on particular commodities to meet the economic conditions without at the same time reducing all rates. Mr. Chandler said he would not oppose any particular reductions which seemed necessary in the judgment of the traffic officials and if the carriers found any rates out of line, they should reduce them, but if the commission finds that reductions are warranted they should be general rather than confined to specific commodities. Asked whether he would rather have a horizontal reduction of one per cent than a substantial reduction on some commodity, Mr. Chandler said he did not think the commission would order any such reduction. Commissioner Esch referred to a statement by Mr. Willard that a reduction of less than 10 per cent would have little effect and asked the witness whether if a 10 per cent reduction were to be made, amounting to approximately $450,000,000, it should be distributed among all commodities and diluted or whether it should be concentrated on six, eight or ten basic commodities.

"I do not see how the Interstate Commerce Commission could play favorites," Mr. Chandler replied. "I do not see how any one can say that any reduction from the peak would not help. The big shippers who are interested in particular commodities can usually take care of themselves."

Representatives of Commercial Organizations Favor General Reduction

A number of representatives of commercial associations followed Mr. Chandler, most of whom specifically endorsed the position taken by the National Industrial Traffic League, or at least expressed the general opinion that any reduction in the rates should be a horizontal percentage reduction. These included H. Mueller, of the St. Paul Association of Public and Business Affairs; Frank H. Baer, Cleveland Chamber of Commerce; J. H. Tedrow, Chamber of Commerce of Kansas City; C. E. Childe, Omaha Chamber of Commerce; R. M. Field, Illinois District Traffic League; P. W. Hanson, East Side Manufacturers' Association; P. W. Coyle, St. Louis Chamber of Commerce; George P. Wilson, Philadelphia Chamber of Commerce; C. S. Bather, Rockford Manufacturers and Shippers' Association; W. C. Lindsay, National Confectioners' Association, and C. G. Hylander, National Association of Chewing Gum Manufacturers. Many of these witnesses laid emphasis on the importance of some definite statement by the commission at an early date to relieve the uncertainty as to whether rates are to be reduced. Some of them were questioned by members of the commission as to the importance of passenger fares. Mr. Childe said there is an economic demand for reduced passenger fares. Mr. Field said that his association had taken no position on passenger fares because of the opinion that freight rate reductions are of greater importance. A number of the witnesses said that the present level of rates is restricting the markets of manufacturers by tending to reduce long haul shipments. When Mr. Lindsay said that candy manufacturers now can only reach the nearby territory, Commissioner Hall asked if there is any special reason why candy should move for long distances and whether it is not an advantage to the manufacturer to have other competition kept out of his territory. Mr. Lindsay said that it works both ways, but that a reduction in rates would be a great help to the industry. Commissioner Lewis asked whether 10 or 15 per cent reduction in freight rates would increase the sale of candy. The witness said he thought it would. Every little item helps in this industry, he said, and reduction ought to help the consumer. Mr. Hylander said that the production of chewing gum in this country was last year approximately 100,000,000 pounds. During 1919 it was 110,000,000 pounds. The price has not been advanced and he did not attempt to say that a reduction in freight rates would increase the sale, but urged the importance of a reduction of the cost of transportation as one of the costs of doing business in order to restore business to normal conditions.

Construction Industries Want Reduction in Building Materials

William B. King, representing the National Federation of Construction Industries and the National Association of Builders' Exchanges, opposed a horizontal or general reduction in rates as unscientific and said that reductions should first be made on the heavier and more basic commodities. He urged a rate reduction on the ground that it would tend to promote construction and relief of the housing shortage but admitted that the freight rate is only one of many elements which enter into the situation. If he had to choose, he said, he would probably prefer to have a larger reduction in wages than has been made.

Mr. Hines Advises Against General Rate Reduction at This Time

Walker D. Hines, former director general of railroads, testified on January 31 at the request of the commission and expressed the opinion that there ought not to be a general reduction in rates at this time and that great caution should be exercised in making any specific reductions, for the reason that reductions which would reduce the income of the carriers would be detrimental to the public service and that it is wholly problematical whether reductions would have a sufficient effect in stimulating traffic to increase net earnings. He said he thought the commission would be justified in taking as starting points for its consideration the fact that the railroads are not now earning more than a fair return and that no reduction in rates could be called for on the ground that the earnings are too high (although, he said, we must all admit that the rates are high), and that the slump in business is due to fundamental conditions of worldwide character and not to the rates in this country. The depression, he said, is due to the inability of the entire world to readjust itself after the war. Mr. Hines said that the commission has the authority and duty to consider the reasonableness of rates on specific classes of traffic, but he was not in a position to offer observations as to the reasonableness of specific rates. However, from the standpoint of the public interest in adequate transportation, the attitude which should probably be adopted toward specific complaints is that the entire condition at present is essentially abnormal and temporary.

He also pointed out that any revenue which the railways may be able to save would go to build up a reserve which he thought of the largest public interest. They have not been in a position to build up a satisfactory reserve and their surplus has in recent years been depleted. When Commissioner Campbell asked whether Mr. Hines thought the roads should start to build up a reserve in abnormal times, Mr. Hines said he had not meant that, but that in a doubtful case the need of the railroads for a reserve is a factor to be borne in mind. It is to be expected, he said, that the railroads will not earn a fair return in times of depression. The only thing to hope for is a surplus in good years. A reduction in rates now, Mr. Hines said, would deplete the revenues of the railways unless it should result in a considerable stimulation of traffic and to reduce the revenue would reduce the purchasing power of the railways. There would also be a serious doubt in many cases as to whether a reduction in rates would go to the benefit of that part of the community that ought to have it. The benefit is often appropriated by some class of society that is highly organized.

In reply to a question by Commissioner Lewis as to what would be the effect on the business of the country of a general 10 per cent reduction in rates, Mr. Hines said his impression is that a reduction of that sort would translate itself into such an exceedingly small change in prices that it would not have an important effect. It would probably be absorbed by the highly organized class of society and not get very far. An increase in demand is required to bring about an increase in business and he did not think a reduction of that amount would be sufficient to increase the demand in general. It is well to recall, Mr. Hines said, that the railroad enterprise is so big and so obvious that it is likely to be a target toward which every one directs his shafts when there is discontent, although the transportation service is not the real cause of the trouble. In his opinion, one of the greatest burdens on production in this country is the system of distribution, but it is much easier to direct an attack against the transportation than it is against the system of distribution in general. Therefore, we have a situation where the complaints of the public take the direction of the demand for action whose certain effect would be the hampering of the public service.

Mr. Hines said he had no other idea than that there will be a continued expectation of rate reductions and the commission should supervise the situation so that reductions may be made from time to time in such a way as not to be hurtful to the public interest. He believed the most useful

method of getting a satisfactory idea of the situation would be to take all the information available and create a statement of railroad operations for a constructive year, assuming a normal traffic and a normal level of expenses. Much confusion is caused by stressing matters out of proportion to their effect on costs as a whole. For example, he said, the discussion of the national agreements has created an impression that they cost hundreds of millions of dollars, but he had seen no estimate on the part of the executives of great savings to be effected by the modifications made in them by the Labor Board.

Mr. Hines also expressed the opinion that the railroads have not devoted as much attention to terminal and maintenance expenses as they have to road haul expenses. One of the difficulties is that we have not developed satisfactory measures of results in those fields.

Reduction in Rate of Return Not Advisable

In reply to a question by Commissioner Esch as to what should be a fair rate of return after March 1, Mr. Hines said that under present conditions a reduction in the rate of return would not be advisable, but he questioned whether the commission is under duty to fix a rate on or before March 1. He thought it would be entirely proper for the commission to hold that matter under consideration as long as there is no hope of the railways earning an excessive return and fix the percentage when the time comes to make use of it. At any rate, it would not be expedient to reduce it below the present rate. Commissioner Esch pointed out that the law merely states that the percentage shall be determined from time to time as often as may be necessary. Commissioner Esch referred to the criticism of the valuation tentatively fixed by the commission for the purpose of the rate case, on the ground that it included property paid for out of surplus earnings and asked if that sort of property should be legitimately included. Mr. Hines replied that the property as it stands belongs to the railroad companies and its value is the value as it stands. The fact that it was created in part out of surplus earnings does not impair the ownership. Mr. Hines said that he did not believe that the reasonableness of rates at the present time should be decided by any assumption of what business will be for the future, but that there should be a continuing study of the situation.

"We know," he said, "that the returns in the immediate past have been decidedly low, and it is reasonable to believe that any substantial reduction in revenues would be injurious to the public interest. Extreme caution should be used in reaching a decision that any rate is too high."

A Polish Container Car for Coal Service; One Section of Body Removed to Show Construction of Underframe

Tie Production Greatly Curtailed

THE PRESENT limited demand for cross ties on the part of the railways is naturally leading to a marked curtailment in production in practically all parts of the country. Indicative as this is of the retrenchment in expenditures which the roads have been forced to effect, it is also a result of an extensive over-production in 1920. However, this situation forecasts a shortage when the roads begin to buy, for a considerable interval necessarily elapses between the beginning of tie making operations and the delivery of ties to the roads. The present lack of activity in the principal tie producing areas of the United States was outlined in reports prepared by operators in those regions and presented at the fourth annual meeting of the National Association of Railroad Tie Producers, which was held at the Hotel Sherman, Chicago, on January 26 and 27.

In Virginia, West Virginia and Ohio a number of roads withdrew from the market late in 1921, while others curtailed their purchases. This has led to a decline in production until the output is only 20 to 25 per cent of normal in Virginia and 35 to 40 per cent in West Virginia.

In the southeastern states including Kentucky, Tennessee, northern Alabama and Mississippi, a few scattering lots of ties of 1920 manufacture remain. Relatively few ties have been produced in 1921. Recently some of the roads have bought ties under contract or have started buying along their right-of-ways, but the demand is still so limited that the tie contractors and buyers are only going after those ties which can be obtained most cheaply and with the least effort practically stopping production in the more inaccessible areas.

In the South Central states, including the Ozark region, production is now somewhat below normal, but in the cotton producing sections where the crop is almost a failure it could easily be stimulated to double what it is now. The prices now being paid are approximately 50 per cent of those of a year ago. The demand from the railroads has been below normal until recently, but the indications are now that it will increase to practically normal during the spring and summer.

Operations in the northern woods are now smaller than at any time in the last 20 years. In this territory the ties are produced during the winter on contracts let in the fall. Last fall the roads did not enter the market to any extent and those ties purchased were at prices about half of those of a year ago. Under these conditions the only ties which are now coming out are those produced by farmers who are compelled to cut some timber in order to eke out a living.

In the Rocky Mountain territory most of the ties are hewn far back in the woods and are transported to market by driving in spring flood waters, also necessitating fall contracts. The railways have secured marked concessions in prices and have put into effect more drastic specifications. Aided by an ample supply of labor at reduced wages some of the operators are going ahead. The production as a whole, however, has been curtailed greatly in this area.

In the Pacific Northwest the production is now limited principally to the immediate local requirements of the roads. A considerable portion of this demand is being supplied by the small producer, principally the ranchers who have small tracts of suitable timber which they can convert into ties. The percentage of hewn ties in this area is now much greater than for many years.

A BILL HAS BEEN introduced in the State Senate of Kentucky, to give to the Board of Public Works the power to order and to contract for the elimination of grade crossings, charging the railroad companies with 65 per cent of the cost and the city or town with 35 per cent.

Revised Station Plans Embody New Features

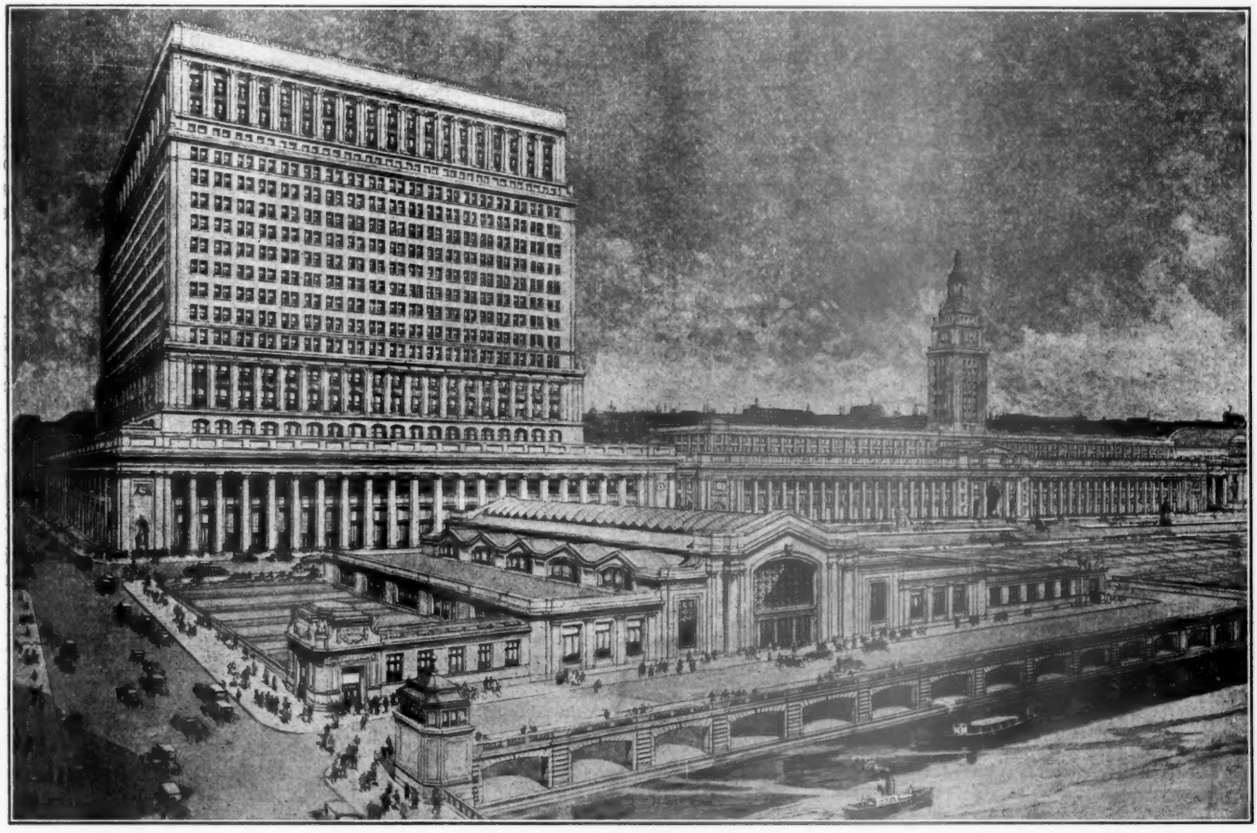
The Chicago Project Embraces Headhouse of Office Building Type and a Large Railway Mail Terminal

DEVELOPMENT OF PLANS for the Chicago Union Station during the progress of construction has led to some interesting modifications of the original layout, chief among which is a decision to adopt an office building type of structure for the headhouse instead of one providing only for the waiting room and auxiliary facilities. Another departure from the original plan is provision for an enormous railway mail terminal now in process of construction. A further innovation embraces separate baggage platforms with ramps connecting to the basement baggage room so that elevators and trucking tunnels below the level of the tracks have been largely eliminated.

The general conception of the station as described in the *Railway Age Gazette* for November 3, 1916, page 803, remains unchanged. As there described, the project provides for a headhouse occupying the entire block bounded by Canal, Adams and Clinton streets and Jackson boulevard, with a passenger concourse under and east of Canal street and two separate grids of station tracks to the north of Adams street and to the south of Jackson boulevard respectively. The station proper and tracks will be on a level below the city streets with a baggage room occupying a sub-basement, having communication with the street by means of two long inclined driveways that open onto the street at the northwest and southwest corners of the headhouse.

Work on this project was curtailed with the advent of the war and the period of government control, but upon the subsequent resumption of the construction the desirability of certain departures from the original plans have presented themselves from time to time and these changes have been incorporated in the final plans.

One of the important changes agreed upon provides for the necessary changes in the headhouse to permit of an office building in place of the monumental type of construction originally contemplated for exclusive use as a station structure. This modification was undertaken as a means of securing more efficient utilization of the full block of valuable real estate to be occupied by the headhouse and will be accomplished without any appreciable alteration of the architectural treatment of the great waiting room which will be 250 ft. long by over 100 ft. wide. Access to the offices will be afforded by entrances on the Adams street and Jackson boulevard sides of the building, which will have no connection with the waiting room floor except minor stairways for the accommodation of persons employed in the offices in going to and from trains. The large waiting room will have entrances from the centers of the Canal street and Clinton street sides with stairways leading to the waiting room level which is 16½ ft. below Canal street and 10 ft. below Clinton street. The main entrance on Canal street will be in duplicate, the two doorways and stairways being separated a distance of 112 ft. This space between the two stairways will be utilized to provide a single broad corridor leading from the waiting room to the passenger concourse, and with one passageway instead

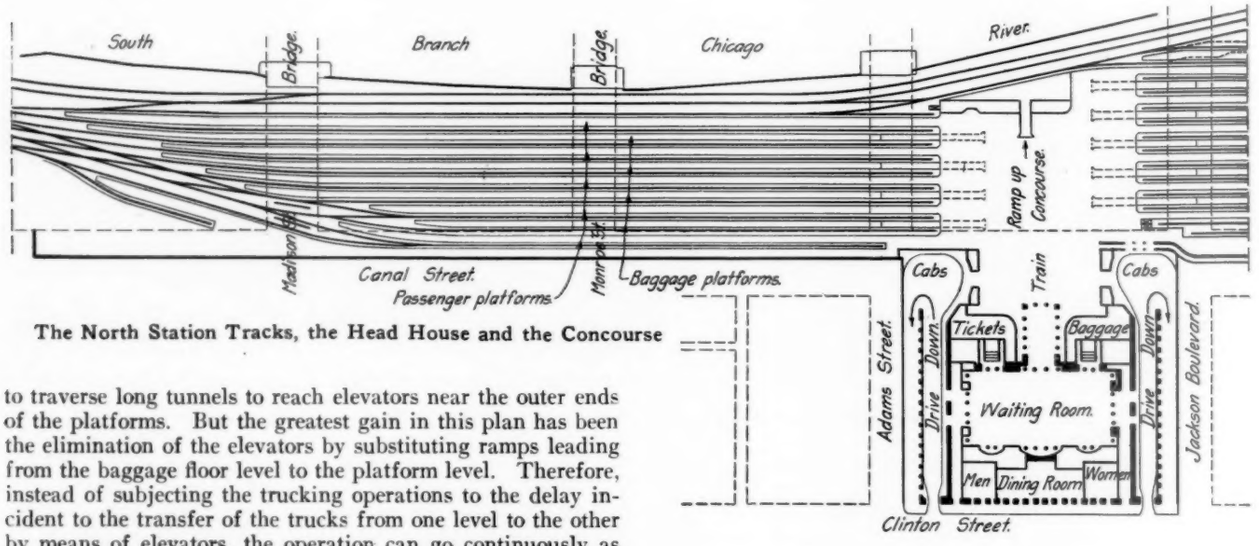


Architect's Drawing of the Completed Station, with a Suggested Plan for a New Post Office at the Right

of two, as originally planned, it will be possible to place the ticket offices on one side and the baggage counter on the other side. The result will be a most logical separation of the functions of the passenger concourse and the waiting room. Thus, the concourse will provide, in close proximity, all of the facilities needed by the passenger for the business of taking or leaving a train, namely, the ticket office, baggage counter, parcel check, cab stand and convenient access to the street by means of ramps from entrances on Jackson boulevard and Adams street close to the two river bridges. These will be of special convenience to the suburban passengers since they afford entrance to the station at those points on the station property nearest to the business center of the city. The waiting room is designed to provide for those passengers who are compelled to spend some time in the station. Along the west wall of this great room will be found a lunch room and restaurant, while at the northwest and southwest corners will be the women's waiting room and smoking room, respectively, together with toilets, rest rooms, etc.

Unique Baggage Platform Arrangement

By far the most interesting feature of the new plan is the arrangement of the baggage platform which was brought about as a means of obviating the costly construction of trucking tunnels and elevator pits below the water level of the nearby Chicago river, but aside from considerations of economy, a number of operating advantages will accrue from the arrangements agreed upon. The primary result will be the segregation of passengers and trucks on independent platforms. This in turn obviates the objection to the movement of trucks on the platforms to and from the baggage and express cars at the outer ends of the platform, thereby permitting all trucks to pass from the baggage room direct to the platform instead of requiring all trucks for outbound trains



The North Station Tracks, the Head House and the Concourse

to traverse long tunnels to reach elevators near the outer ends of the platforms. But the greatest gain in this plan has been the elimination of the elevators by substituting ramps leading from the baggage floor level to the platform level. Therefore, instead of subjecting the trucking operations to the delay incident to the transfer of the trucks from one level to the other by means of elevators, the operation can go continuously as the ramps will be wide enough to permit the passage of two trucks abreast. The plan will be better understood by reference to the drawing. The design provides for placing the head of the ramps at about the normal position for the end of the tender of an incoming locomotive so that the baggage platform will be at the normal level opposite the nearest door of the leading baggage car.

The baggage platforms will be 10 ft. 9 in. and the passenger platforms 13 ft. 1 in. in width and by a rearrangement of the tracks it has been possible to provide approximately the same amount of track space in the station as was originally planned with the tracks spaced 27 ft. center to center across the platforms. The original plan was committed to the use of high station platforms, but owing to the through car traffic movement involving the use of cars from various connecting roads in the west, it was found that the high platforms would entail extended changes in equipment by roads that do not enter the station. Consequently, it has been decided to adopt the low passenger platform but with a type of construction that will readily permit of a change to high platforms whenever this is found desirable. The construction of low passenger platforms will require a slight incline downward from the concourse floor level to the platform level. In event of subsequent construction of high passenger platforms, a slight ramp upward from the concourse to the platforms will be required.

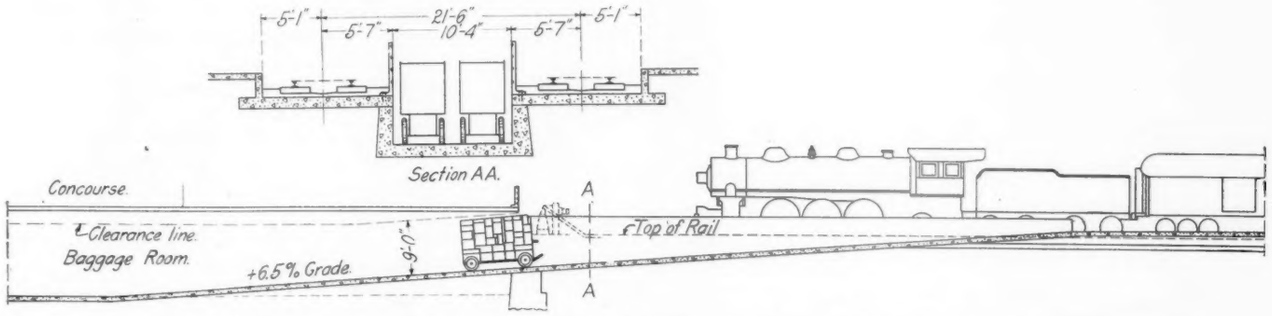
Large Structure for Railway Mail Service

Another important change in the station plans has been brought about through an arrangement with the United States Postoffice Department whereby the City of Chicago will secure the advantage of a considerable increase in its postoffice facilities without the need of obtaining an appropriation from Congress. Under a contract consummated between the station company and the Postoffice Department, the former is now erecting a seven story building, 796 ft. long by 75 ft. 6 in. wide, extending along the east side of the station property for the full distance between Van Buren street and Harrison street. This feature of the project alone will entail an expenditure of approximately $4,000,000. The Postoffice Department has agreed to lease this building for a period of 20 years, and the building will be adequate to take care of the railway mail service of the railroads entering the Union station and will also afford a large measure of relief to the greatly overcrowded general postoffice of the city.

The building is an enormous structure providing over 11 acres of floor area and 8½ million cu. ft. of cubical contents. The use of this building for the handling of mail to and from trains will be limited to the basement, the track level floor and a portion of the street level floor, the remaining portion of that floor and all those above being reserved by the postal department for the sorting and distribution of papers, parcel post and similar mail matter. Mail is delivered and received on both the track and the basement level. On the track level, platforms are provided adjacent to two longitudinal tracks and four stub tracks with adequate space for 61 cars. In the basement communication is provided by means of two tunnels for the handling of mail on platform trucks to and from mail cars standing on tracks elsewhere in the sta-

tion. One of these tunnels passes transversely under the south end of the south station tracks and gives access to these tracks by means of elevators. The other tunnel connects the mail building with the station baggage room where the ramps, previously referred to in this article, afford direct access to the baggage platforms adjacent to any of the tracks.

The building is to be equipped with the most modern appliances for the mechanical handling of the mail. Fifteen



Two Sectional Views, Illustrating the Arrangement of Ramps from Baggage Platforms Into the Baggage Room

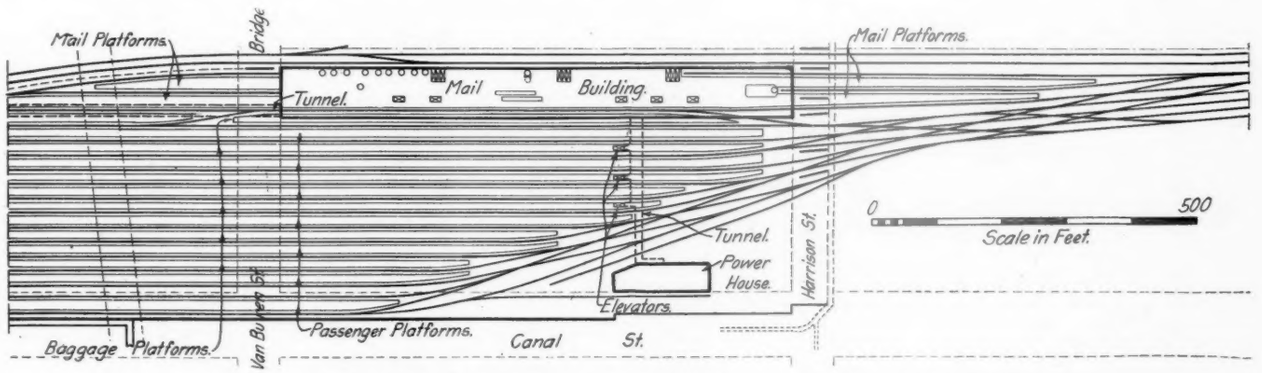
elevators will be provided for the handling of the mail trucks. Nine of these elevators will extend from the basement to the sixth floor.

Five of them will operate between the driveway level and the basement and one will serve between the basement and the track level. In addition to the elevators provision has been made for the transportation of mail from place to place in the building and also for classification

end of the building, or to upper floors of the building for reclassification.

The building is also of considerable interest from the standpoint of design and construction. It has a structural steel frame containing 7,000 tons of structural steel and is supported on concrete caissons extending about 50 ft. below the city datum. The most notable feature is a steel truss in the west wall 149 ft. 4½ in. long, center to center of supporting columns, which carries a load of 4,050 tons and is the heaviest truss which has ever been used in building construction.

The building of this truss is occasioned by the requirements of the trackage serving the mail terminal. One of the platform tracks for the building is located inside the columns supporting the west wall of the building and to connect this track with an outer track parallel to it, it was necessary to



The South Station Tracks, Showing Also the Mail Terminal

through the agency of belt conveyors. Spiral chutes will also form an important feature of the layout.

Building of Unusual Character

The street level floor of the building will be devoted to the handling of mail to and from street vehicles. The building has but a very limited frontage on the two streets, but ample truck space will be provided by a driveway which is being constructed along the east side of the building for the entire distance between Van Buren street and Harrison street. Outgoing railway mail will be received at the north end of the building and passed into 18 chutes by which the mail will descend either to the track level or the basement. The arrangement of elevators is such that ample facilities are provided for the delivery to the lower floors of any mail that is unsuited to handling in the chutes. Inbound railway mail will be received directly from cars and spotted at the house platforms or on platform trucks coming in through the trucking tunnels. This mail will be elevated to the street floor for delivery to street trucks in the driveway at the south

provide a crossover with No. 7 frogs requiring a length of 220 ft. between switch points. As a consequence of this it was necessary to omit four of the wall columns in the track level story of the building and support these columns in the floors above by a truss in the street level story or at a sufficient elevation so that the bottom chord would give a clearance of 17 ft. above top of rail. The weight of this truss is 365 tons and it contains 11 tons of field rivets, largely of 1 1/16 in. diameter.

The building is not enclosed with walls on the track level, but will have brick curtain walls for all stories above the street grade.

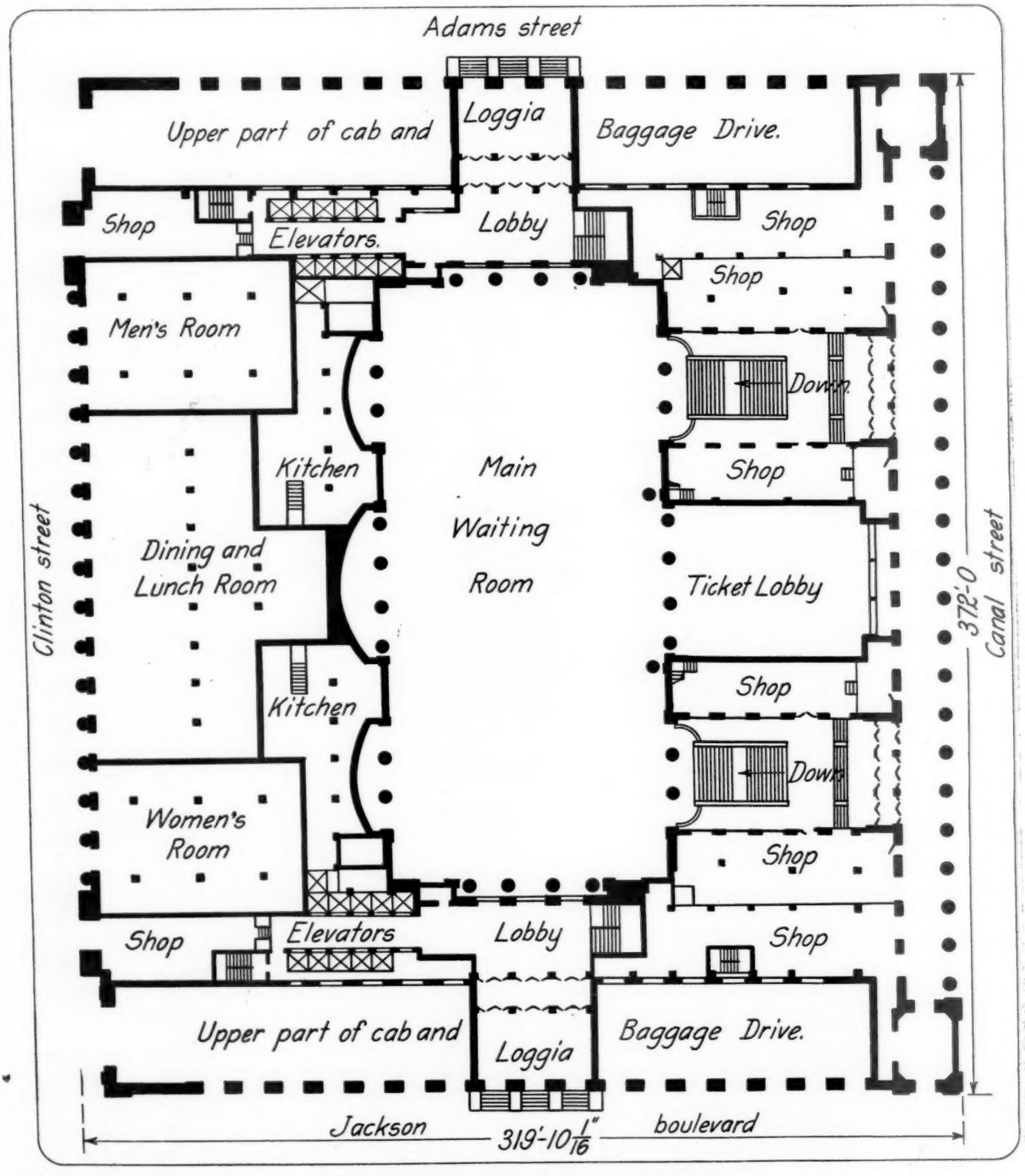
The delivery platforms on the street level are provided with steel rolling doors. The floors are of reinforced concrete construction, covered with creosoted blocks for all areas used for trucking or handling mail.

A street entrance and public lobby are provided at the Van Buren street end of the building with access to three passenger elevators communicating with the various floors. A portion of the sixth floor is arranged to provide space for

postal offices, stock room, repair shops, cafeteria, study room and incinerator, a room for charging batteries for electric tractor trucks and auxiliary uses.

Work on the station project is progressing under the direction of J. D'Esposito, chief engineer, and A. J. Hammond, assistant chief engineer, Chicago Union Station Company. Graham, Anderson, Probst & White, Chicago, are the architects. Arrangement for the use of the railway mail terminal by the United States Railway Mail Service is under the direction of Colonel E. H. Shaughnessy, second assistant postmaster general, Washington, D. C.

PASSENGERS CHECKING BAGGAGE on the Chicago, Burlington & Quincy, commencing March 1, will be allowed to declare the actual value of their property. The new rule will replace that limiting the value to $100 for each adult ticket. Receipts for the excess valuation are to be indicated by stamps affixed to the baggage.



The Head House—a Section at the Street Level

W. G. McAdoo Defends His Administration

Former Director General Replies to Criticisms with Charges Against Railway Executives

WASHINGTON, D. C.

A DETAILED REPLY to numerous criticisms of the federal administration of the railroads during 1918 and 1919 was made by W. G. McAdoo, director general of railroads during 1918, in a prepared statement presented before the Senate committee on interstate commerce on February 1 and 2. The statement comprised 140 typewritten pages, a large part of which was made up of quotations from statements made by railroad executives in testimony before the Interstate Commerce Commission and Congressional committees, and by the commission in reports and in testimony before the committees regarding the condition of the railroads prior to federal control, from various reports and memoranda contrasting operations during federal control and those under private management and from correspondence of the Railroad Administration, which Mr. McAdoo uses to support his contentions. Much of the material used has previously been published in reports of the Railroad Administration. A condensed abstract of the prepared statement, omitting most of the quotations, is as follows:

McAdoo's Testimony

Charges of inefficiency in the management of the railroads during federal control have, from time to time, been made and published with a recklessness for which ignorance, design or selfish purpose alone can account. So far as 1918 is concerned, the unpublished testimony of seven of the ablest railroad men in the United States, given in a report to my successor as director general of railroads, Walker D. Hines, January 17, 1919, is conclusive answer:

"The measures taken during the year 1918 called for no apologies. They were caused by war conditions and the efficient operation of the railroads in support of the government during the war justifies every act of the administration during that period. It was impossible to avoid the increases in wages which were granted, and those which are pending are inherently a result of the same causes. War industries surrounding the railroads on all sides were paying war prices for labor and depleting the railroad supply of labor, particularly the supply of skilled labor. These conditions necessarily forced increases in wages of railroad labor and will persist not only during the present year (1919) as a necessary part of the war experience of the country, but for sometime in the future."

This report was signed by: A. H. Smith, C. H. Markham, R. H. Aishton, Hale Holden, B. F. Bush, N. D. Maher and B. L. Winchell.

There has been a general disposition to compare railroad operations in 1918 when, out of imperious necessity, they had to be devoted, first, to war purposes; and, second, to the general needs of the country, with the operation of the railroads under peace conditions and in normal times. A moment's reflection will convince any unbiased mind that such a comparison is wholly unfair and prejudiced. Even on this basis it is clear that railroad operations in the year 1918 were conducted with great efficiency, skill and ability.

In 1918, after paying a rental of $906,000,000 there was a deficit in railroad operations of $216,000,000. Unthinking people urge this as conclusive evidence of the failure of the Railroad Administration. It is, of course, a superficial and unfair judgment, because it is a part of the war cost and, like all war cost, it is an expenditure for which there is no compensation but victory. When we consider the imminent peril which faced the country because of the breakdown of the railroads under private control, in 1916 as well as in 1917, and reflect that the assertion of federal control alone overcame that peril and transformed the railroad systems of the country into a tremendous and effective war machine, and that the total cost of transportation for the war purpose in the year 1918 was only $216,000,000, and for the entire 26 months of federal control only $714,000,000 on Class I roads, it is infinitesimal as compared with the total expenditures made by the American people to win the war.

When the government took over the railroads there was, of course, no opportunity to make an inspection of tracks and structures and to determine with certainty their condition; nor to make similar investigations of the condition of motive power and equipment; nor to check inventories. The government had to rely upon railroad officials and railroad men, all of whom were retained in the service of the government and upon whose loyalty and integrity the government had a right to depend, at a time when our sons were shedding their blood and giving their lives upon the fields of battle. Railroad men ran the railroads of the United States while I was director general, and if they were inefficient or disloyal to their government in that time, they must answer to their own consciences. But I have said before that I believed them to be both loyal and efficient, and that the remarkable results achieved in 1918 conclusively prove that they were.

Pre-War Condition of Railroads Called a Menace

In the fall of 1917 the inefficiency of the American railroads made them unintentionally but nevertheless actually the strongest ally of the German Kaiser. The collapse under the burden of war traffic had almost cut the line of communication between the American army at the front and its base of supplies. The condition of traffic, particularly in the east, and the embargoes on freight in all important centers, had reached such an acute state of almost complete congestion that the Interstate Commerce Commission December 1, 1917, felt impelled to submit to Congress a special report sharply calling attention to the critical situation which faced the country.

Upon our declaration of war the railroads in response to the resolution of the Council of National Defense, organized on April 11, 1917, a special Committee on National Defense, usually called the Railroad War Board, to secure co-operation between the various railroad systems. Despite the activities of this committee and its various efforts at co-operation, the condition of the railroads grew steadily worse until there had become an almost complete paralysis of transportation. This Railroad War Board, on December 22, 1917, only five days prior to the President's proclamation to take over the roads and in response to a questionnaire by the chairman of the committee on interstate commerce of the Senate, submitted replies outlining what it had accomplished during the more than eight months of its existence, emphasizing the things deemed necessary for successful operation of the railroads and the difficulties with which they were faced.

[Then follows a series of quotations from the report of the Railroad War Board and other expressions as to the condition at that time.]

This breakdown of the American railroads did not occur over night. It resulted not alone from lack of unification, but from the impaired physical condition of the roads extending over a period of years, and from long-deferred maintenance and improvements.

It is now asserted by railroad representatives or executives that when the roads were taken over by the government January 1, 1918, they were a well-equipped machine and in splendid physical and operating condition. The falsity of this assertion is shown by the report made by the Railroad War Board in which it is recited that the railroads needed "approximately 2,000 locomotives and 150,000 cars in addition to those now on order to meet the requirements" of the year 1918 and that "the cost of this equipment is approximately $500,000,000 and that "the railroads generally cannot * * * (in the year 1918) provide through their usual channels for the capital requirements for the acquisition of equipment and other possibile additions to plant." They invoked, therefore, the co-operation and aid of the government to secure for them on their own individual credit the new capital found by the government to be necessary not only for enlarging plant but for renewing maturing obligations.

At the time this statement was made the railroads had on order 1,902 locomotives and 42,857 freight cars.

By their own confession the railroads needed 3,902 locomotives and 192,857 freight cars. During federal control 4,226 locomotives and 159,056 freight cars were supplied to the railroads. Notwithstanding this great addition to the equipment of the companies the railroad executives are now claiming that the railroads were returned to them a less well-equipped machine than at the time the government took control of them, January 1, 1918.

If the railroads had been a "well-equipped machine" and in splendid physical and operating condition January 1, 1918, why was it that, in the fall of 1916, there was a congestion and breakdown of railroad transportation in the United States of a similar character and with like hurtful consequences, to the breakdown and congestion which occurred in the fall of 1917 just prior to federal control?

Further startling differences between the present attempt to

show that the railroads were is splendid condition and the effort of the railroad executives to obtain various increases in rates are disclosed by the records of the Interstate Commerce Commission. In view of the pathetic picture of the condition of the roads as drawn by these executives before the Interstate Commerce Commission from 1910 to 1917, the least cynical might be justified in questioning the good faith of these who in order to bolster up a fictitious case against the operation of these roads under federal control, now assert that they were maintained under private control "to the highest point of efficiency."

As long ago as 1910, in testimony given before the Interstate Commerce Commission, the railway officials acknowledged that their roads were not being maintained and improved in accordance with public expectation and the traffic needs of the country.

If evidence, other than the statement of the Railroad War Board and the testimony of the railroad executives is needed to demonstrate that lack of sufficient motive power continued to the beginning of federal control, it will be found in the letters to me (quoted) in January, 1918, from various executives of the Eastern lines answering my complaint of their inefficient operation of the roads. For instance, Samuel Rea confessed that the Pennsylvania Railroad had "practically the same plant as in 1915"; President Dice of the Philadelphia & Reading itemized his difficulties of operation as—1st, shortage of locomotives, and 2nd, shortage of men; Mr. Besler, president and general manager of the Central Railroad of New Jersey said, "We lack sufficient locomotives, of which we have been in urgent need for months past." Mr. Besler also requested that I "immediately direct 25 freight locomotives *** be transferred to the Central Railroad of New Jersey."

It is a significant commentary upon the pre-war efficiency of railroad equipment that from 1914 to 1916 the number of locomotives in the service decreased from 67,012 to 65,595; and on December 31, 1917, there were only 66,070 locomotives in service. In other words, when the railroads were taken over there were 942 less locomotives in the service than in June 30, 1914, three and a half years previous, while the average tractive power of locomotives had increased only from 31,006 to 33,932 pounds.

Similarly the number of freight cars increased from 2,349,734 on June 30, 1914, to 2,329,475 on December 31, 1916, but increased December 31, 1917, to 2,379,472, or practically 50,000 cars increase in *three and a half years*, while their average tonnage capacity increased from 39.1 to 40.9 tons per car, or only 1.8 tons per car.

Bad Order Cars

The following tables, compiled from the records of the Railroad Administration on the basis of the number of locomotives and revenue cars on line, and not on the basis of units of equipment owned, show the condition of locomotives and freight cars at the beginning and end of federal control, and utterly refute the present extravagant claims of the railroads:

	Beginning of Federal Control*	End of of Federal Control
Number of locomotives on line	58,309	65,100
Number of locomotives out of service for repairs requiring over 24 hours	9,105	11,587
Percentage of locomotives out of service for repairs requiring over 24 hours	15.6	17.8

*Figures include only roads owning 100 or more locomotives.

Bad Order Cars as of January 4, 1918, and February 28, 1920

	Bad order cars	Revenue cars on line	Per cent of bad order cars to revenue cars
January 5, 1918	*126,650	2,374,566	5.3
February 28, 1920	141,906	2,486,507	5.7

There were on hand 14,275 cars held under Circular No. 20 awaiting disposition or authority to retire.

*These figures are based upon reports of the railroads made upon order of the Director General of Railroads.

The tables show that there was little difference in the reported number of bad order cars and locomotives at the beginning and the end of federal control. The percentage of bad order locomotives presents a more unfavorable showing to the railroad Administration than actually existed, for the reason that prior to federal control locomotives were only reported as out of service for repairs when they were in need of class repairs, while the Railroad Administration required such a report for all locomotives held for repairs which would require more than 24 hours to perform. On this basis the number shown out of service for repairs at the beginning of federal control would be increased to about 20 per cent.

The facts that the bad order equipment at the beginning of federal control was blocking the terminals and shops and roundhouses, and that during federal control a higher standard of maintenance than before was maintained, so that at the end of federal control the railroads were in condition to meet the heaviest traffic demands in their history.

Remedies Applied

The Railroad Administration adopted the only two possible methods for improving the general condition of equipment; namely, first, immediately using more efficiently the available facilities and forces, and later increasing the shop facilities and forces, since immediate increase of these facilities and forces under war conditions was impossible. The Railroad Administration called on the representatives of the organized railroad employees to agree to certain modifications in their contracts with the railroad companies relative to hours of labor and to agree also to modifications of the rules governing the promotion to mechanics of apprentices and helpers.

Under these modifications the railroad employees patriotically gave up privileges and concessions which their organizations had obtained through many years of negotiations and controversy, in which they agreed to an extension of the hours of service to 70 per week and to the promotion of all competent helpers and apprentices to mechanics wherever a shortage of mechanics existed. The concessions granted to the government by the labor organizations at this time could not have been obtained by the railroad managements under any conditions. The employees had previously refused to make similar concessions to the railroad corporations because of their belief that once they gave up these privileges, they would never be restored under private control. The average increase in locomotive-shop hours for the entire country amounted to about 16 per cent., and the effect became immediately apparent by the increased number of locomotives repaired per week.

There were 1930 locomotives of various types built by locomotive works on administration orders during the full period of federal control and 100,000 freight cars were, on like order, built by car manufacturers. This equipment was standardized. As a matter of fact the Railroad Administration purchased 4226 new locomotives and 159,076 freight cars. Counting the equipment built in railroad shops we turned back to the carriers 2006 more locomotives, 26,815 more freight cars and 1051 more passenger cars than we received.

Standard practices were also established for mechanical work and many other economies effected. From the beginning, the mechanical department of the Division of Operation endeavored diligently to maintain the equipment, without any idea that economies should or could be realized by reducing maintenance which the equipment ought to receive, but with the thought that the fullest possible measure of maintenance should be given, trying through greater vigilance to get more maintenance per dollar of money expended than would be expected if such vigilance were lacking. With this thought in mind, immediately after the roads were placed under federal control, we began to check locomotive shop output and roundhouse shop costs, so that all unnecessary expenditures might be eliminated and greater efficiency in shop and roundhouse operation obtained. Where improper practices were found to exist, action was taken through the regional directors to secure more efficient and economical methods.

Federal managers were required to prepare and submit information regarding maintenance of equipment during the test period, during the seven years prior to the test period, as well as during the calendar year 1918.

Deficit of 1918 Charged to Railway Executives

The railway net operating income for the year 1918 as defined by the federal control act was $690,418,778. The rental charge was $906,524,492, leaving an operating deficit for 1918 of $216,105,714.

A striking illustration of the result of the running of the railroads of the country by the corporations for the account of the government may be obtained by comparing the results of the first five months of 1918 with the first five months of 1917.

As shown by the Interstate Commerce Commission, the net operating income for the first five months of 1917 was $346,439,522. The net operating income for the first five months of 1918 was $215,278,841. This means that the corporations when running the railroads for the account of their government, with all the aid and assistance the government could give, earned $131,160,681 less operating income than in the same period of 1917. This decrease occurred in spite of the advantage of a 15 per cent increase in official classification territory in class rates, directed by the Interstate Commerce Commission in *June*, 1917, and a general advance of 15 per cent in commodity rates in the same territory *March* 12, 1918, and without taking into account the retroactive wage increase (made upon the recommendation of the Railroad Wage Commission), properly chargeable against the first five months of 1918. The entire wage increase was charged to operating expenses for the last seven months of 1918, thus mak-

ing the showing for the first five months of 1918 more favorable to the corporations than the facts justify.

The rental charge for the first five months (5/12 of $906,524,492) was $377,718,535, while the operating income was $215,278,841. The result is that the corporations, without charging them up with retroactive wage increase, did not earn the rental for the roads for the first five months of 1918 by $162,439,694. If we charge to the first five months of 1918 their proportion of wage increases made subsequent to May, 1918, but retroactive to the first of January, 1918, it would add to the operating expenses $198,780,724. This would reduce the net operating income of $215,278,841, reported for the period, to $16,498,117, a decrease of $329,941,405 as compared with the net income for the first five months of 1917.

The proportionate amount of rental due the carriers for these five months was $377,718,538. Deducting the net income of $16,498,117, we have a loss for the five months of $361,220,421, or more than the total deficit for the year 1918, viz.: $216,105,714. On this basis there was a surplus for the last seven months of 1918 of $145,114,707 as compared with a loss of $361,220,421 for the first five months of 1918.

If, to offset the above charge due to wage increases against the operations of the carriers by corporations for the first five months of 1918, they should be credited with five-sixths of the $494,000,000 which Director General Hines says would have been received if the rate increase put in effect in June, 1918, had been in effect from January 1, 1918, the result would be to add $412,000,000 to the net operating income for the first five months and convert the loss of $361,000,000 to a surplus of $51,000,000. On the other hand, allocating one-sixth of the $494,000,000 to the last seven months of the year would increase the surplus of $145,000,000 shown above to a surplus of $227,000,000 or five times the surplus of the first five months of the year.

If, in these circumstances, there had been no deficit, what becomes of the charge of extravagance and wasteful inefficiency now preferred against federal control? Do not these figures show that the waste, inefficiency and incompetence, if any, was shown by the railroad executives when they were operating the railroad for account of the government during the first five months of 1918?

Private Control Declared a Failure During the War

The issue is inescapable that if there was in 1918 extravagance and inefficiency, these railroad executives were guilty of it, and if they were not guilty then, they are now, for their own purposes, guilty of an attempt to besmirch the record. I have defended their loyalty to the government, and have believed that they were honestly attempting to co-operate with the government in the efficient operation of the roads, but what excuse can they offer for their reckless and indiscriminate criticism of the operation of the railroads under federal control when figured on any basis, by far the greater part of the deficit for the year 1918 occurred when they were operating the carriers for the account of their government? What pretense can they make that they could have produced better results than the government whey then signally failed to function efficiently not only during the first five months of 1918 Lut also in 1916 and 1917 as shown by the scathing criticism of the railroad corporations by the Interstate Commerce Commission in its decision of January 18, 1917, to which I have already referred?

Having failed so signally to raise capital to provide the necessary capital expenditures and the wage increase necessary to retain sufficient skilled labor to efficiently operate the roads, by what right do they now criticize the Railroad Administration which established a credit of a billion of dollars and more for capital expenditures, brought order out of chaos, not the transportation system of the country functioning, opened up the line of communication between the soldiers at the front and their base of supplies, and made possible the early ending of the gruesome and awful war?

Could private control have bettered the weather conditions of which the railroad executives complain, or overcome the ravages of influenza, or more capably cope with the competition for skilled labor which the high wages of the shipyards, munitions plants, and the cost-plus contracts generally, had abnormally excited? The unescapable truth is that private control was powerless to meet the demands upon the railroads.

It is unfair and stupid, if not worse, to challenge the efficient operation of the railroads during 1918 under the stress of war conditions, because after paying more than $900,000,000 to the owners in rentals there was a deficit of about $216,000,000, all of which, on a fair comparison and adjustment was incurred by the railroad executives in the first five months of 1918 as I have already shown.

Corporations Relieved of Operating Carriers

On March 21, 1918, Congress passed the federal control act which created practically the relation of lessor and lessee between the railroad corporations and the government, and by the first of May, I had become convinced that the management of the railroads by the railroad corporations under the direction of the director general could no longer be continued. Not only was I dissatisfied with the results of the corporate operation of the roads, but I realized that under the federal control act there would inevitably be conflicts between the duty of the railroad executives to their corporations and their duty to the government. Moreover, I became convinced that much economy could not be effected without rerouting of traffic by the shortest and most efficient lines which meant the elimination of competition, the abandonment of unnecessary passenger and freight mileage, the elimination of many employees who were required under competitive control and were not needed under unified operation of the railroads.

Experience of almost five months with corporate managements convinced me that their officers were so habituated to competitive practices that it was impossible even under government control to prevent them from competing with each other for business. Tradition and habit were too strong. Thorough coordination and the most efficient use of the properties for the war purposes required the abandonment of competition.

The unanswerable fact is that the performance of the railroads in 1920 would not have been possible if the railroad properties had not been returned to them by the government in exceptionally good condition. The railroads could not have performed "the greatest transportation task in their history" if they had been broken down or injured by the government. On the contrary, this "greatest task in their history" was performed because, during the period of federal control, $1,219,840,291 was expended in improvements, additions, betterments and equipment which made of the railroad properties an infinitely better transportation machine than it was on January 1, 1918, when the government took possession. This is shown in part by the condition of locomotive tractive power and freight car tonnage capacity.

Complaint of Poor Distribution of Cars

One of the frequent complaints by the railway executives has been that when the carriers were returned to private control, the freight cars of the individual carriers were poorly distributed among them all, and due to the unification methods of federal control, this resulted in each railroad having only a small percentage of its own cars at home. And yet the Interstate Commerce Commission points out in its 1920 report, after the return to private control, "cars have been distributed primarily without regard to ownership" because "the movement of traffic was the first consideration." And within two and a half months, upon the petition of the railroads, the commission ordered the relocation of thousands of cars without regard to ownership. More than this, this report shows that the same Car Service Commission of the American Railroad Association, existing before federal control and which was used as the agency of the director general in distributing cars during federal control, was continued by the railroads after federal control and distributed hundreds of thousands of cars without regard to ownership. This complaint therefore, is baseless.

Bad Order Condition of Equipment

It is interesting to compare the bad-order condition of freight cars and locomotives at the end of federal control with such condition on July 1, 1921, with such a let up in traffic movement in the past year as to afford private management a splendid opportunity to bring the condition of the equipment up to that high standard of maintenance which they would have us now believe was usual in the "outstanding success" of the management.

It will be recalled that the bad order freight cars on February 20, 1920, numbered 141,906, or a percentage of 5.7; locomotives out of service for repairs over 24 hours were 11,587, or 17.8 per cent. On October 1, 1921, there were 364,372 bad order freight train cars, which is an increase since the close of federal control of 222,466. This, however, bad as it may seem, does not tell the story with respect to the alarming condition of freight train cars. Of the 141,906 bad order freight cars at the close of federal control, 62,936 required light repairs, and 78,970 required heavy repairs. Of the 364,372 bad order cars as of October 1, 1921, 78,040 required light repairs, while 286,332 required heavy repairs. It will thus be seen that while the number of bad order cars requiring light repairs has increased, 15,104, the number requiring heavy repairs has increased 207,362.

Using an estimated cost of repairs based on studies of the results during federal control, it would have cost at the end of federal control but $9,508,865 to repair all bad order cars. It would have cost on October 1, 1921, $33,365,204 to repair all of the bad order cars, but owing to the fact that many of these cars are of all steel construction and have been standing exposed to the weather for from one to two years, the cost to repair them at present would, without doubt, greatly exceed the above estimate.

[Mr. McAdoo here included a detailed analysis of the Railroad

Administration labor policy. This portion of his testimony will be given in next week's issue of the *Railway Age*.]

Comparative Cost of Public and Private Operation

There are so many different factors to be taken into account, that no completely satisfactory comparison can be made of the operating and financial performance of the transportation system under the war administration as against the period since the termination of federal control. Moreover, as I have stated, the period covered by the Railroad Administration was unique and unprecedented. The railroads were managed with but one primary object in view—to assist in the winning of the war. When it became necessary, costs were disregarded. Even under these conditions, however, a very favorable comparison can be drawn with the results of private operation.

The railroads as public utilities cost the people of the country whatever amounts are paid for the transportation of freight and passengers plus whatever direct appropriations or grants are made from the public funds by the Congress after deducting assets remaining in the hands of the government. During the 26 months of federal control, the gross revenues paid to the railroads directly by the public amounted to $11,036,572,509. Director-General Davis recently estimated that the ultimate cost arising from appropriations by Congress would be $1,496,281,961. Adding this to the direct cost in revenues, we have a total cost to the public amounting to $12,532,854,470, covering the entire 26 months of federal control.

Since the termination of federal control, statistics are available for 20 months of private control or until November 1, 1921. These show a total operating revenue paid by the public to the railroads of $9,972,305,818. To this must be added the amounts which must be paid by the public under the 6 months guarantee period. The Interstate Commerce Commission estimates this will be $525,412,135. This sum added to operating revenues makes a total cost to the public of 20 months of private control amounting to $10,508,242,716. Reducing the cost of each period to a comparable monthly basis, gives the following result:

Cost to the Public Per Month

Railroad Administration	$470,637,404
Private Control	525,412,135

Expressed in terms of dollars and cents, therefore, the cost of operating the railroads under private management has been $54,774,731 per month more than it was during federal control or $657,296,772 per annum. If the costs of operation are considered on the basis of units of transportation actually handled, or equated ton miles, it is even more favorable to the Railroad Administration. It is as follows:

Cost to the Public Per 1,000 Equated Ton Miles

Under Railroad Administration	$10.94
Under Private Control	12.81

Every advantage is given to this comparison to the period of private operation. The annual guaranteed rental of $906,000,000 is fully included in the period of federal control while in the period of private control the return or net profit, contemplated under the transportation act, is practically omitted. If the expectations of the transportation act had been completely realized as the returns provided for the railroads (6 per cent on $18,900,000,000) the cost to the public of private operation would have been greatly increased. The return provided for in the transportation act, if realized, would amount to $1,134,000,000 annually. In 1920, however, the net income of the railroads was only $62,264,000 and in 1921, according to estimates, the net income will not exceed $600,000,000. Conservatively stated, therefore, the amount which it would have cost the public if the guarantee provision of the transportation act had been realized during the period of private management would have been at least one billion dollars more than the amount already stated. This is equivalent to $50,000,000 for each month of the period. If added to the surplus of cost to the public per month, as before stated, of a private over governmental control, it would amount to $93,379,275 a month or in other words, would show that private operation had cost the people $1,120,551,300—more per annum than the Railroad Administration.

Annual Costs of Operation

As to actual operating costs and efficiency, a comparison may be made by eliminating all elements of profit and reducing the items to direct operating expense. This is done in the following table:

	January 1, 1918, to February 29, 1920, inclusive	March 1, 1920, to October 31, 1921
Total operating expenses	$9,266,990,270	$8,876,733,707
Tax accruals	421,392,919	481,501,012
Uncollectible revenue	1,747,524	2,098,975
Equipment rents	52,880,773	74,552,116
Joint facility rent	32,697,662	30,258,968
Totals	$9,775,709,148	$9,465,144,778

By reference to this table it will be seen that the actual operating monthly costs under governmental control were only $375,988,813 as against $473,257,239 under private management; or in other words, private control cost $97,268,386 more per month or $1,167,220,632 per annum.

Expressed in terms of work done or units of traffic handled the cost per 1,000 equated ton miles under government control was only $8.74 as compared with $11.54 under private management. In other words the cost of private operation since federal control has been 32 per cent higher than under the Railroad Administration.

Clerks' Brotherhood Officials Protest Discharge of Freight Inspectors

H. J. Chapman, general chairman of the Brotherhood of Railway Clerks for Trunk Line territory, and J. J. Forrester, national legislative representative of the brotherhoods, testified before the Senate committee on January 27. Mr. Chapman said that last March the railroads abolished the Trunk Line Freight Inspection Bureau after the freight inspectors had refused a proposition to work six days a week for five days' pay and had thereby thrown out of employment 900 freight inspectors, who, he said, had saved the eastern railroads $12,000,000 a year in revenue by detecting cases of freight which had been improperly classified by the shippers.

He said that at one point alone three inspectors who had received during the year $3,900 in wages had saved the railroads $100,000 in revenue. Mr. Chapman said that the railroads had taken this step on the ground of economy and had suggested that the work could be handled by the regular station forces, but, he said, that it was his personal opinion that the bureau was abolished because the employees had organized and that as a matter of fact the work had not been done by the other employees. In November the bureau was re-established with about 75 inspectors, most of whom were new men. A proposal that the inspectors work without salary but on a percentage basis was not accepted by the roads, Mr. Chapman said.

Senator La Follette, who took a great interest in this testimony, asked whether the railroads had abolished the freight inspectors so as to make it easy to extend favors to shippers. Mr. Forrester said he would not charge that that was the purpose, but that this would be the result. Senator Cummins remarked that the suspension of the inspection service would leave it just as open to the shippers the railroads did not want to favor, but Mr. Forrester said that it would be easier for a railroad to instruct one of its own employees to allow a mis-billed shipment to go through than it would be if the inspectors were employees of a bureau. He preferred to criticize the action of the railroads as mismanagement, but said that if it were not mismanagement there is some other motive on the part of the railroads. Senator Fernald, who has himself had a great deal of experience as a shipper, said that in Maine he knew that every car of freight is inspected by the local agents. Mr. Forrester said this is not true in the larger terminals. Mr. Forrester said that the records of the bureau will show that even with the inspection there is a large amount of mis-billing and mis-classification of freight on the part of the shippers and that the abolishment of the inspection simply increased the waste of railroad revenues.

Mr. Chapman said that only five days before he was dismissed he had been approached by a shipper who proposed to put through 1,000 cases of whiskey billed as medicine and had offered him $1 a case to let it go through. He had reported this to his superior who had notified the internal revenue officers, but he said apparently the railroads did not appreciate his action. Senator Cummins said that the charge appeared to be that the eastern railroads have thrown away $12,000,000 a year without apparent reason and that he would take the liberty of calling the matter to the attention of the railroads to see what explanation they may have.

Report of the Bureau of Locomotive Inspection

Smaller Percentage of Defects—Fewer Accidents—Welding Firebox Crown Sheets Dangerous

THE REPORT of the chief inspector of locomotive boilers to the Interstate Commerce Commission for the fiscal year ending June 30, 1921, shows a decrease in the percentage of locomotive defects and a falling off in the number of accidents. The number of locomotives inspected, moreover, was larger than in any previous year since the bureau has been in operation. A summary of the report is given below.

Statistics of Defects and Accidents

The tabulations have been arranged so as to permit comparison with previous years, and show the number of locomotives inspected; the number and percentage of those inspected

Low Water Caused Crown Sheet Failure and Boiler Explosion

found defective; and the number for which special notice for repairs was issued, withholding the locomotive from service because of having defects constituting violations of the law; together with the number of defects found; also the number of accidents caused by failure from any cause of the locomotive or tender and all parts and appurtenances thereof, together with the number of persons killed and injured as a result of such failure.

NUMBER OF LOCOMOTIVES INSPECTED, NUMBER FOUND DEFECTIVE, PERCENTAGE INSPECTED FOUND DEFECTIVE, NUMBER ORDERED OUT OF SERVICE, AND TOTAL DEFECTS FOUND BY YEARS

	1921	1920	1919	1918	1917
Number of locomotives inspected	60,812	49,471	59,772	41,611	47,542
Number found defective	30,207	25,529	34,557	22,196	25,909
Percentage found defective	50	52	58	53	54.5
Number ordered out of service	3,914	3,774	4,433	2,125	3,294
Total defects found	104,848	95,066	135,300	78,277	84,883

NUMBER OF ACCIDENTS, NUMBER KILLED AND NUMBER INJURED AS A RESULT OF FAILURE OF PARTS AND APPURTENANCES OF THE ENTIRE LOCOMOTIVE AND TENDER, BY YEARS

	1921	1920	1919	1918	1917
Number of accidents	735	843	565	641	616
Decrease from previous year (per cent)	12.8	*49.2	11.8	4.1	...
Number killed	64	66	57	46	62
Decrease from previous year (per cent)	3	*15.8	*23.9	25.8	...
Number injured	800	916	647	756	721
Decrease from previous year (per cent)	12.6	*41.6	14.4	4.8	...

*Increase.

NUMBER OF ACCIDENTS, NUMBER KILLED AND NUMBER INJURED AS A RESULT OF THE FAILURE OF SOME PART OR APPURTENANCE OF THE BOILER ONLY, FOR THE FISCAL YEAR ENDED JUNE 30, 1912, 1915, 1920 AND 1921

	1921	1920	1915	1912
Number of accidents	342	439	424	856
Number killed	51	48	13	91
Number injured	379	503	467	1,005

DERAILMENTS DUE TO DEFECTS IN OR FAILURE OF SOME PART OF THE LOCOMOTIVE OR TENDER, AND THE NUMBER OF PERSONS KILLED AND INJURED AS A RESULT OF SUCH DERAILMENTS FOR THE FISCAL YEARS ENDED JUNE 30, 1917-1921, INCLUSIVE.

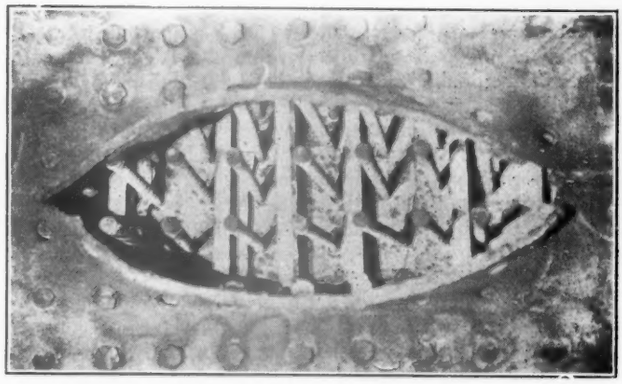
	1921	1920	1919	1918	1917
Number of derailments*	8	7	7	2	4
Number killed	...	7	6	...	1
Number injured	30	18	7	2	21

*Only derailments reported by carriers as being caused by defect in or failure of parts of the locomotive or tender were investigated or counted in this tabulation.

A summary of accidents and casualties occurring during the fiscal year ended June 30, 1921, as compared with the year ended June 30, 1920, covering the entire locomotive and tender and their appurtenances, shows a reduction of 12.8 per cent in the number of accidents, 3 per cent in the number killed, and 12.6 per cent in the number injured.

During the first six months of the fiscal year 1921 accidents and casualties occurred at an alarming rate and exceeded those of any like period during the five preceding years. However, during the last six months a marked reduction is recorded. The number of accidents and casualties during the year was considerably in excess of those occurring during the year 1919, a large number of accidents resulting in serious injury being caused by the failure of what are frequently termed unimportant parts. For instance, during the year 85 accidents were caused by the failure of some part of the grate-shaking apparatus, 82 by squirt hose, and 65 by some part of the reversing gear, all of which could have been avoided by reasonable care.

There were no authentic records from which comparisons



Crown Sheet Failure Caused by Low Water; Seam Had Been Autogenously Welded

could be made of accidents prior to the enactment of the boiler inspection law. A comparison, however, of the fiscal year ended June 30, 1912, the first year of the law, with the fiscal year 1915, the year in which the law was amended, and 1921, the present year, is of importance, and shows the far-reaching effect of proper inspection and repair, as required by the law and the rules and regulations established thereunder.

Comparing 1912, covering parts and appurtenances of the boiler only, with the year 1915, the fourth year of the law, there is shown to be a reduction of 50 per cent in the number of accidents, 85.7 per cent in the number killed, and 53.5 per cent in the number injured.

Comparing 1912 with the year 1921 covering parts and appurtenances of the boiler only, there is shown to be a reduction of 60 per cent in the number of accidents, 44 per cent in

the number killed and 62 per cent in the number injured.

Comparing 1915, the fourth year of the existence of the law, with the year 1921, there is shown a decrease of 19 per cent in the number of accidents, an increase of 292 per cent in the number killed, and a decrease of 17 per cent in the number injured, due to the failure of some part or appurtenance of the boiler only. Barrel explosions have been entirely eliminated, and while the so-called crown-sheet failures have materially decreased, the great increase in fatalities indicates that the severity of these failures has increased tremendously.

Welded Firebox Sheets

During the year there were a number of accidents investigated in which firebox seams formed by the autogenous welding process were involved, where, through the failure of these seams, it is believed the result of the accident was much more serious than would otherwise have been. Autogenous welding can be used on many parts of the locomotive and tender and on parts of the stayed surfaces of the boiler with safety and economy, but inasmuch as the bureau's accident investigations show that approximately 80 per cent of the autogenously welded seams fail, where they are involved in the accidents, it is believed that such methods should be avoided in firebox crown-sheet seams where overheating and failure are liable to occur, or on any part of the boiler where the strain to which the structure is subjected is not carried by other construction which fully meets with the requirements of the rules, at least until some means has been developed through which the quality and tenacity of the weld may be established in advance of its failure. This should apply on all parts of the locomotive and tender where, through failure, an accident and an injury might result.

Boiler Explosions

The next portion of the report is devoted to a discussion of the theory of boiler explosions and to what takes place in such occurrences.

The force of a boiler explosion is in proportion to the size and suddenness of the initial rupture and the temperature and volume of the water in the boiler at the time of the rupture. The average modern boiler has a capacity of approximately 500 cu. ft. of water below the crown-sheet and has a steam space of about 150 cu. ft. If such a boiler with 200 lb. pressure ruptures from any cause, so as to suddenly reduce the pressure to that of the atmosphere, the released energy will amount to approximately 700,000,000 ft.-lb. and if the explosion took place in two seconds approximately 690,000 h.p. would be developed.

This gives some idea of the force which accompanies many boiler failures, with their serious and fatal results, and supplies the reason for the violence which in many cases is sufficient to hurl the entire boiler several hundred feet or tear it into fragments, scattering them in every direction.

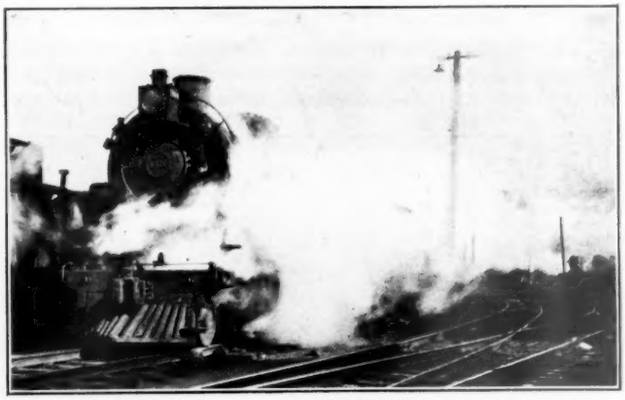
Explosions result because some part of the vessel is too weak to withstand the pressure to which it is subjected. This weakness may be caused by: 1. Abnormal steam pressure. 2. Weakness in design or construction. 3. Improper workmanship. 4. Corrosion or wasting away of material. 5. Broken or defective stays. 6. Overheated crown or firebox sheets.

A remedy for the first three causes is provided for in the law and rules by requiring that the working pressure be fixed, after consideration of each individual boiler by competent authorities, and by fixing a substantial factor of safety to provide against any hidden defects of material and construction.

To protect against failure due to corrosion or other defects caused by wear and usage, the law requires that regular inspections, both interior and exterior, be made and that all boilers be subjected to a hydrostatic test at regular intervals and a sworn report filed showing the conditions found and repairs made.

Failure of crown or firebox sheets, due to overheating, may be the result of scale or grease on the firebox sheets or from low water. The firebox sheets and tubes are in contact with the fire, and would become heated to that temperature if it were not for the presence of water in the boiler. As previously explained, the temperature of the water depends on the boiler pressure, but rarely reaches more than 400 deg. F.; therefore while the plates are in contact with the water on one side they cannot greatly exceed this temperature, although the temperature in the firebox may exceed 2,500 deg., which is about the fusing point of firebox steel.

The heat in the firebox is conducted through the plate to the water in the boiler, where it is absorbed, the sheet thus



Leaking Badly But Reported Ready for Service: Cylinder Cocks Closed

being prevented from heating to the temperature of the fire and burning gases. If, however, the transmission of the heat to the water is obstructed by scale or grease, or if the water fails to absorb the heat, due to being foamy, the plates will retain the heat, and may become red hot; or if the sheets are unprotected by water from any cause they become overheated. Metal loses strength when heated, and if heated to a high temperature has comparatively little strength to resist the pressure within the boiler, when as a result the sheets are forced off the stays and failure occurs. It is a well recognized fact that scale or grease may be the direct cause of an explosion. Scale may indirectly cause an explosion by restricting or closing the openings in the water-indicating appliances, thereby causing a false level of water to be registered, deceiving the enginemen.

Water Gages and Glasses

One of the most perplexing problems which has presented itself while operating the modern locomotive is that of securing a correct indication of the height of water over the crown-sheet under all conditions of service.

In the last annual report was included the results of tests made to determine the action of water in the boiler on the water-indicating appliances with respect to their correct registration. These tests established that gage cocks screwed directly in the boiler do not correctly indicate the general water level while steam is rapidly escaping from the boiler, and in order to secure a proper appliance it was recommended that a water column to which three gage cocks and one water glass were attached be applied.

As far as the bureau has been able to determine, practically all new locomotives constructed since that report was rendered have had water columns applied. On old locomotives the application has not progressed rapidly, probably due to the difficulty in obtaining necessary appropriations. The

necessity for such appliances, however, is practically unquestioned, and some roads are proceeding with the application in a very satisfactory way. It is hoped that in the near future this important appliance will be applied on all locomotives, so that enginemen may have accurate knowledge of the general water level in the boiler under all conditions of service.

Flue Removals

During the year 209 applications were filed for extension of time for the removal of flues, as provided in rule 10. Investigation showed that in 25 of these cases the condition of the locomotives was such that no extension could properly be granted; 22 were in such condition that the full extension requested could not be granted, but an extension for a shorter period within the limits of safety was allowed; 25 extensions were granted after defects disclosed by investigation had been repaired; 38 applications were withdrawn for various reasons; and the remaining 99 were granted for the full period requested.

Headlights

On July 1, 1920, the rules became effective requiring each locomotive used in road service between sunset and sunrise to be equipped with a headlight which will enable the enginemen to see in a clear atmosphere a dark object as large as a man 800 ft. ahead of the locomotive and that yard locomotives have one light on the front and one on the rear that will enable the enginemen to see 300 ft. ahead of the locomotive. These requirements have been given close attention and have been fully complied with. The lighting equipment with which locomotives are now equipped seems to be meeting with the universal approval of officers and employees required to operate and maintain them.

The fact that not a single formal appeal has been taken from the decision of any inspector during the fiscal year demonstrates that wisdom and good judgment have been exercised by the inspectors in the performance of their duties.

Recommendations

On closing the report the following recommendations are made:

That the act of February 17, 1911, be amended so as to provide for additional inspectors to be appointed by the commission as the needs of the service develop, and that adequate salaries may be paid that will obtain and retain in the service a full corps of well-trained, efficient inspectors, and that the amounts directly appropriated be increased to meet the requirements.

That all locomotives not using oil for fuel have a mechanically operated fire door so constructed that it may be operated by pressure of the foot on a pedal or other suitable device located on the floor of the cab or tender at a proper distance from the fire door, so that it may be conveniently operated by the person firing the locomotive.

The old swing-type door, which is largely used at present, is almost invariably blown open in case of firebox accidents and permits the discharging steam and boiling water, with the contents of the firebox, to be blown into the cab of the locomotive, seriously and most frequently scalding and burning the persons therein. Such accidents frequently occur while coal is being put into the firebox, and with the fire door necessarily open, under such circumstances it is impossible for it to be closed. The automatic fire door would remain closed if closed when the accidents occur. If open, it would automatically close the moment the operator's foot was removed from the operating device, thus preventing the direct discharge of the scalding water and fire into the cab of the locomotive with such serious results.

The automatic fire door is not a new and untried device, as there are thousands of them in service, and they are required by law in some states. The automatic fire door is also of great value in prevention of serious cracks and leaks in firebox sheets by limiting the time the fire doors are open when placing coal on the fire, thus reducing the amount of cold air admitted, which causes loss of temperature and consequent expansion and contraction and the setting up of great strains.

That all locomotives be provided with a bell so arranged and maintained that it may be operated from the engineer's cab by hand and by power.

That cabs of all locomotives not equipped with front door or windows of such size as to permit of easy exit have a suitable stirrup or other step and a horizontal handhold on each side approximately the full length of the cab, which will enable the enginemen to go from the cab to the running board in front of it; handholds and steps or stirrups to be securely fastened with bolts or rivets; the distance between the step and handhold to be not less than 60 in. nor more than 72 in.

That all locomotives where there is a difference between the readings of the gage cocks and water glass of two or more inches under any condition of service be equipped with a suitable water column, to which shall be attached three gage cocks and one water glass, with not less than 6 in., preferably 8 in., clear reading, and one water glass with not less than 6 in., preferably 8 in., clear reading on the left side or back head of the boiler. Investigations have clearly established that gage cocks when screwed directly into the boiler do not correctly register the proper water level over the crown sheet. It is very important that at least two appliances attached separately be employed for this purpose so as to form a double check and so as to have one appliance in case of failure of the other while on the road and away from points where repairs can be made.

Felton Attacks Estimate of "Savings" Under New Working Rules

A PUBLICITY statement emanating from the Railroad Labor Board and containing an estimate of the enormous "savings" which are to ensue from the application of the new working rules for clerks, freight handlers and station employees, was impeached by Samuel M. Felton, president of the Chicago Great Western and chairman of the Western Committee on Public Relations of the Association of Railway Executives, in a statement issued on January 30.

"The press and public recently have been misled by misinformation emanating from the office of the Railroad Labor Board in a matter of such importance that the incident should not be allowed to pass unnoticed," Mr. Felton said.

"On January 28 a statement headed 'From United States Railroad Labor Board' was given to the press regarding an order the Labor Board had issued changing certain rules in the national agreements made by the Railroad Administration under federal control with the Brotherhood of Railroad and Steamship Clerks, Freight Handlers, Express and Station Employees. Referring to the changes in two rules which were made, the statement emanating from the Railroad Labor Board said, 'These two changes in the rules are expected to save the railroads many millions of dollars—any exact estimate being impossible owing to fluctuating business and traffic conditions. Railroad critics of the national agreements in past hearings before the Railroad Labor Board contended that these two rules cost the roads great sums, even hinting at amounts in excess of $50,000,000, but experts attached to the board say that $15,000,000 is a conservative estimate.'

"This whole statement regarding estimated savings, although emanating from the Labor Board, was a fabrication.

"First, no witness for the railways in hearings before the Railroad Labor Board ever estimated that the two rules in

question cost the railways $50,000,000 a year, and therefore no witness for the railways ever intimated that by changing these two rules this amount could be saved.

"Second, the statistical department of the Labor Board itself estimated—not at $15,000,000—but at $4,823,524.84 the total saving that could be made by changes in these rules.

"The result was to give a large part of the public the impression that the saving made by these changes in rules was ten times as great as was estimated by the board's own statistical department. Furthermore, some railways which have carefully checked their figures are unable to find that the changes in rules in question will enable them to make any savings that are more than negligible.

"The press and the public are entitled to know the facts about this matter, because it is wholly unjust to give the public a grossly exaggerated idea of the reductions in railway labor costs which the Labor Board is making by its revision of the working rules."

No comment has been made at the Labor Board. Several members are not in Chicago and it is understood that no further action will be taken until the full board can assemble.

Rules for Recovery of Excess Income

THE INTERSTATE COMMERCE COMMISSION on January 28 made public an order dated January 16 prescribing regulations for the ascertainment and collection of the amounts due the government under the so-called "recapture" provisions of the Transportation Act in the case of roads earning a net railway operating income in excess of 6 per cent. The commission has decided that the first computation to be made of the excess earnings shall be made for that part of the year 1920 during which the roads were operated without guaranty from the government and that thereafter the computation shall be made on the basis of calendar years. For that part of 1920 the roads are required to report by February 1. There had been some speculation as to whether the commission would use for this purpose the first twelve months after the expiration of the guaranty, which would be the year beginning September 30, 1920, for most of the roads. The selection of the period makes some difference because during the last four months of 1920 the increased rates were in effect and the volume of traffic was heavy until December. For September the Class I roads earned at the annual rate of 4.52 per cent, for October 4.84 per cent, for November 3.39 per cent, and for December 0.29 per cent, whereas for the year ending August 30, 1921, the net operating income represented a return of only about 2.9 per cent. The difference, however, is comparatively slight for the roads as a whole, although wide variations may exist as to different roads, but by segregating the odd months of 1920 it is made possible to proceed hereafter on the basis of the calendar year, which is also the railroad fiscal year.

The order provides in part as follows:

It is ordered:

1. That the years or parts of years for which net railway operating income and the return represented by such income upon the aggregate value of railway property held for and used in the service of transportation are to be computed shall be the years or parts of years ending on December 31, respectively. In the case of any carrier which accepted the provisions of section 209 of the Transportation Act, 1920, the first period for which such computations are to be made shall be September 1, 1920, to December 31, 1920, both inclusive. In the case of carriers which did not accept the provisions of said section 209 of the Transportation Act, 1920, the first period for which such computations are to be made shall be March 1, 1920, to December 31, 1920, both inclusive.

2. That the excess income for the portions of a year ended December 31, 1920, shall be preliminarily fixed as the income in excess of such proportions of 6 per cent on the value of the railway property held for and used in the service of transportation as the net railway operating income for the months of September to December, both inclusive, or for the months of March to December, both inclusive, as the case may be, in the three years ended June 30, 1917, bears to the total net railway operating income for the same three years.

3. The aggregate value of the railway property of the reporting carrier or carriers shall be based preliminarily, in the case of carriers which made such returns directly or indirectly, upon the amount reported or used by such carrier or carriers as the aggregate value of railway property held for and used by them in the service of transportation in the proceeding entitled "in the matter of the applications of carriers in official, southern, and western classification territories for authority to increase rates," Docket No. Ex Parte 74, with adjustments for—

(*a*) New lines, extensions and additions, and betterments;
(*b*) Retirements;
(*c*) Amounts of property for which permission to retain earnings under paragraph (18) of section 15a of the Interstate Commerce Act has been granted; and
(*d*) Other increases or decreases,

properly affecting the aggregate value of the railway property of such carriers held for and used in the service of transportation, claimed or reported by the carrier and supported by detailed explanations. The value of such railway property, as reported, will be corrected and the actual value will be determined in the manner provided in paragraph (4) of section 15a of the Interstate Commerce Act, and corresponding adjustments in amounts recoverable by and payable to the commission will be effected. In the case of those carriers which did not directly or indirectly make returns in connection with Ex Parte 74, the investment in road and equipment as of December 31, 1919, with proper adjustments as hereinabove indicated will be used for preliminary computations, and these preliminary computations will be similarly corrected after the determination of actual values in accordance with paragraph (4) of section 15a of the Interstate Commerce Act.

4. The establishment of preliminary bases for prorating the return of 6 per cent, or ascertaining property values to which the rate is applicable, does not preclude any carrier from using such other bases as it considers more equitable and in accord with the facts; such other bases, however, must be fully and properly supported.

It is further ordered, That pursuant to the foregoing rules and regulations for the determination and recovery of the excess income payable under section 15a of the Interstate Commerce Act each and every carrier by railroad, or partly by railroad and partly by water, within the continental United States, subject to the provisions of the Interstate Commerce Act, excluding—

(*a*) Sleeping-car companies and express companies;
(*b*) Street or suburban electric railways unless operated as a part of a general steam railroad system of transportation;
(*c*) Interurban electric railways unless operated as a part of a general steam railroad system of transportation or engaged in the general transportation of freight; and
(*d*) Any belt-line railroad, terminal switching railroad, or other terminal facility, owned exclusively and maintained, operated, and controlled by any state or political subdivision thereof,

shall on or before February 1, 1922, report to the secretary of the Interstate Commerce Commission, Washington, D. C., the following matters:

1. The amount by which its net railway operating income for the period ended December 31, 1920, was in excess of that percentage of the value of railway property held for and used by it in the service of transportation, established by the foregoing rules, with explanation and details of the manner in which such excess income was computed, or, in the event there was no such excess railway operating income, that fact, with corresponding calculations and details in support of the return.

2. In cases where excess net railway operating income is reported, a statement of the title of the fund account in which one-half of such excess was placed, when such reserve fund was established, the amount placed in that fund, and how the assets in that fund are represented or held.

3. The amount of the remaining one-half of the excess income as preliminarily computed paid to the Interstate Commerce Commission and when and how such amount was paid. If unpaid the amount should be paid by remittance to or draft in favor of the Interstate Commerce Commission, transmitted to George B. McGinty, secretary of the Interstate Commerce Commission, Washington, D. C.

4. The value of the railway property of the reporting carrier or carriers with a statement in detail of the manner in which such value is arrived at and a full explanation as to the method in which the values of properties of a group of carriers have been aggregated in cases where property values and income are computed for a system pursuant to the provisions of paragraph (6) of section 15a of the Interstate Commerce Act. In such cases a full explanation should be given of the reasons why the group of carriers used are treated as under common control, management, and operation.

Electric Traction for Steam Railroads

Tendencies of Practice in the United States—Limitations and Advantages of Equipment Used

A REPORT on heavy electric traction, which deals particularly with results obtained in the United States and Canada, has been prepared for the ninth International Congress of the International Railway Association by George Gibbs, chief engineer of traction, Long Island. The report deals with the subject from the standpoint of a railway man who has been in contact with the technical details, but who is writing for those not specially versed in them. Mr. Gibbs has dealt with the subject in an unusually thorough fashion and has made a number of pertinent statements well worth the attention of anyone interested in heavy electric traction. The outstanding parts of the report follow:

In 1910 electric traction was in service in the United States and Canada on 11 different railroads, including a total of 873 miles of track. At the end of the year 1920 the number of roads had increased to 19 and the miles of track to 3370.

This indicates considerable growth in the use of electric traction during a ten-year period, but the greater part is due to projects determined upon prior to the war. It may be said that for the past six years electric traction has been in the condition of arrested development—a situation which unfortunately, applies in some measure to its technical as well as to its physical aspect.

Advantages Secured

The reasons for which electric operation has been adopted have been so often stated that it is unnecessary to enlarge upon them at length, but it will be useful to note that the trend of development of electric traction in America has primarily been to secure better operating conditions, thus:

(1) For terminals, in large cities where tunnel approaches are generally involved (or in long tunnels elsewhere) and usually where steam locomotives are objectionable. Also, because switching and idle power movements can be reduced by using motor-car trains instead of locomotives for haulage. These advantages may greatly increase the capacity of a terminal or a tunnel.

(2) On heavy gradients (sometimes in connection with hazardous steam operated tunnels) where the running speeds with steam traction are low; to increase the capacity of the line and effect substantial operating savings.

(3) For short-haul (suburban) passenger services, to increase track capacity because of quicker schedules in services having many stops, and incidentally, to foster business, due to the attractiveness of electric operation from the standpoint of the traveller.

(4) In certain cases for long-haul services; for the main purpose of securing operating economy in districts where coal is expensive and where cheap hydro-electric power can be obtained.

In other words, the great majority of the installations have been undertaken to facilitate operation over some particularly difficult or congested portion of a railway. In all cases the direct operating savings plus the indirect advantages are sufficient to justify the adoption of electric haulage.

Locomotives

No approximation, even, to a standard electric locomotive design has been arrived at. The problems still ahead for solution are both electrical and mechanical; the former await the selection of a system and the development and perfection of apparatus, the latter relate to the working out of methods of transmitting power from the motors to the driving wheels and securing the best type of locomotive structure for perfect tracking properties. It may be said, however, that the serious problems awaiting solution at present are mechanical, rather than electrical; motors and control of both the D. C. and the A. C. types work well; of the mechanical features we know little of a conclusive nature—experience has been too limited with electric locomotives.

Motors direct-geared to axles are suitable only for slow-speed locomotives, such as those for switching or freight services. For the heaviest requirements of freight haulage, however, it is doubtful if this type is the best, because it is difficult to apply the drive to produce a stable wheel-grouping; also, because the heavy motor masses have a very low center of gravity and the un-spring-borne weights are very considerable. Large motors, furthermore, produce severe side shocks in curving and with track in poor surface, and hub-liner wear is apt to be great.

Locomotives equipped with quill driven geared motors, should produce better results in the above respects, but only in degree. A quill drive has not been entirely satisfactory for very heavy service, because mechanically it is difficult to find space for conservatively designed springs, and if the quill is not maintained normally concentric with the axle severe bending stresses are set up in the springs at each revolution of the wheels, whereas a helical spring should be subjected to torsional stresses only. Therefore, quill drive appears to have a distinct limitation in successful application to electric locomotives.

The type of locomotive which has the motor armature mounted rigidly on the axle, requires many axles for heavy traction, and a locomotive wheel arrangement which is somewhat complicated and unfavorable for tracking. It has been used for high speed work, however, in cases where track construction is of the heaviest character and its maintenance is of the highest order; its field is limited to high speed service because of low output of the motors at low speeds.

Gearless motors flexibly suspended around the axles, may be used for high speed passenger locomotives with either D. C. or A. C. traction, but it is not an economical type as regards first cost of motors and it has a low center of gravity of the running gear. It is furthermore subject to the difficulty mentioned above in securing durable spring-driving mechanism.

Locomotives having gearless motors and rod drive are suitable for high-speed passenger work with both D. C. and A. C. motors, and this type of drive allows the most desirable wheel arrangement and weight distribution for perfect tracking qualities of the locomotive. The motors, however, are very large and costly because of their low speed and their limited capacity; the type is not suitable for low-speed service.

The type of locomotive having geared motors and a rod drive, offers the most flexible and promising solution for passenger and freight locomotive construction, because of the allowable variation in wheel arrangement and in motor mounting and capacity; it permits most perfect tracking qualities for a great variety of designs and running speeds. It is suitable both for D. C. and A. C. traction systems.

Side rods connecting the various driving wheels are desirable in all types to prevent slipping of independent axles and to thus obtain maximum traction, especially with D. C. motors having series-multiple control.

A combination of driving and carrying axles is desirable, also an unsymmetrical wheel distribution, to assist in proper tracking. This point was clearly brought out by the experiments made by the Pennsylvania Railroad in 1909 when it took up the design of its electric locomotives for use in the New York Terminal (*Railway Age*, November 19 and November 26, 1921).

Motor Cars

American practice tends to a motor car which will have the largest passenger capacity consistent with the economical limits to the application of sufficient motive power to the car. Best economy in equipment and maintenance cost is obtained by using two motors only and mounting them on one truck. A modern car of steel construction and of about 70 feet length over-all will satisfy these conditions. It will weigh, without electric equipment, but including full seated passenger load, about 50 tons (100,000 lb.). Two motors will give a capacity of about 500 hp. total for the car, and with this capacity the most exacting local service schedules can be performed, if all cars in the train are equipped with motors.

Existing electrifications for such service are now conducted by the 650-volt D. C. system, by the high tension single-phase A. C. system, and by the 1,500-volt D. C. system with two motors per car; the high tension (3,000 volts) direct current system, requires four motors per car, because of the necessity of limiting the voltage in each motor to 1,500, and to obtain series-parallel control of the motors. Motor-car equipments for the 3,000-volt system have not yet been under practical trial on any electrified steam railway in America.

Current Collection

Third rail conductors have sufficient current-carrying capacity for all traction conditions even with low voltages, but it is believed that the third rail working conductor systems have become obsolete for general railway electrification in America.

The overhead working conductor systems will become standard in the future for general electrification, and the two important electric systems, namely, the alternating current and the high tension direct current must be adapted for all requirements with this form of conductor.

At the present state of the art, the 11,000-volt alternating current system has been demonstrated to be well adapted for current collection from an overhead conductor under all conditions met with on American railways; it is reliable and economical in upkeep.

The success of the 3,000-volt direct-current system, as regards current collection, seems less certain and remains to be demonstrated for some of the difficult conditions that must be met; difficult current collection is undeniably a handicap to the success of this particular electric system and will weigh heavily against its adoption as a standard unless some overwhelming advantages of another nature are possible in the way of future perfection of direct current apparatus which will outweigh the present and probable future advantages of the alternating current system.

Substations

The alternating current system substations contain transformers which alter the voltage of the current only, and the switching and safety apparatus to control it. Substations of this kind are relatively simple, as they contain no moving apparatus and require only occasional inspection and attention. Direct current systems require transformers, switching apparatus for the high tension current and rotary converting apparatus to change it into direct current; also, low-tension switching and safety appliances. This combination of apparatus is relatively costly and complicated and requires attendants at all times. It has been proposed to do away with constant attendance by installing automatic means, controlled by the load conditions, to cut the apparatus in and out of circuit. A description is entirely too technical for insertion in a report of this kind but it may be said that automatic substations have been employed for interurban traction work and are in process of development. It is too early yet to pass upon the results obtained or to assign a definite field for their use. The control mechanism is necessarily complicated, delicate and expensive and probably has serious limitations as regards its use for important traction installations on steam railways. It is possible they may be used in these cases, but as an adjunct only, to assist and simplify the work of the regular attendants in emergencies.

Standardization and Power Supply

Until recently, in America, there has been no concerted action looking to the standardization of the important features of any system, much less fixing upon any one system as a standard for all work. But at the present time this question has been brought very much to the fore.

There exists no sufficient and comparable operating data covering all kinds of traffic from which to conclude as to the relative advantages and disadvantages of the two systems most generally advocated today, i. e., the "alternating" and the "direct" current.

It is too early in the state of the art to determine and fix the features of any one system to the extent required for purpose of useful standardization without restricting the future and desirable development of the system selected. For instance, if the high-tension direct current system should be decided upon as standard, no practical advantage would result unless the voltage should be fixed; no one knows however at present, what voltage should be adopted as a finality for this system and a change in a voltage once established is a serious matter in a direct current system, as it would make obsolete practically all features of an installation in use.

Neither system, as now developed and applied to a typical general case, differs greatly in first and operating costs.

There is danger in endeavoring now to arrive at one standard system of being unduly influenced in favor of one which is at the time enjoying the greatest use, and which may have been the only one available at the time of installation. An example of a system which operates well, but which is conceded to be already out of date for certain kinds of railway usage in America, is the 600-volt direct current third rail system. Main line railroads here are no longer seriously considering the third rail in any form for important main line electrification work. This system is, however, the one most perfectly developed as all features and details have been thoroughly tried out and weak points eliminated. But it is the realization of its limitations which has caused inventors to work to higher voltages and by so doing to get away from the third rail and back to an overhead working conductor system. Assuming that the above statements are well founded, and the writer believes from his experience that they are true, it would appear that the development of electric systems is proceeding along normal and logical lines at present and that there is no reason to force a conclusion at this time by hasty action in any direction. However, there is some reason to feel that this orderly consideration of the subject will not continue because of the views which are being generally expressed by those who are not engaged in operating the railways but are connected with other industries. To be explicit, because this is necessary clearly to explain the situation of the two great electrical manufacturing companies in America, one is committed at present to the advocacy of the direct current system, and does not offer train equipment for the alternating current system; the other company has been responsible for the development of the alternating current system and advocates its use, but will furnish direct current apparatus if the customer prefers.

The telegraph and the telephone companies are unfriendly to alternating current traction because they believe this system may cause them expense or difficulty to prevent inductive effects from the traction current. The commercial central power companies appear to consider it to their interest to advocate the use of direct current traction as the easiest system for them to supply power to, and they are now beginning to plan for the future railway power business. In explanation of this attitude these power companies find it advantageous for their commercial lighting and power loads to use 60-cycle current; this frequency is suitable for direct current traction, but cannot be used for alternating current traction in the present state of the art, without changing the frequency locally, which means added expense, hence they are opposed to the latter system.

While the above interests have decided views and are expressing them, the railways who must use the apparatus have not considered it necessary actively to advocate any particular electric system; they are trying out what they have got and are awaiting further information. Electrical engineers, competent to pass upon the operating as well as the technical aspects of the question, are not very numerous nor very influential, as compared with the powerful interests which are taking a decided stand upon the subject, and engineers are, furthermore, divided in their views upon the question.

The writer wishes it to be understood that he does not wish to advocate any one system to the exclusion of another, and favors a further trial of both the alternating and the high tension direct current systems. However, it will be apparent from what he has said in this report that he considers high tension alternating current to have at present the greater number of demonstrated advantages for general railway use and to hold out the most promise for the future. Therefore, if it is thought necessary to standardize now, it would seem to him illogical to select the high voltage direct current system which has not yet been applied to all railway operating conditions, and which appears difficult of application to some, and to discard a system which has been so applied and is operating economically and well in all cases.

How Federal Valuation of the Roads May be Used*

A Résumé of the Applications Suggested by the Transportation Act and Other Regulatory Activities

By T. P. Artaud
Executive Assistant, Bureau of Valuation, Interstate Commerce Commission

THE USES of railway valuation and the purpose to which it may be put may be treated largely under the heads of:

(1) Those uses which are written into the Transportation act of 1920, and (2) general purposes for which valuation is available but which have not been made obligatory under the law.

Under section 15-A of the *Transportation act of* 1920, the Interstate Commerce Commission is required to prescribe just and reasonable rates under which the carriers as a whole, or as a whole in each rate group or territory, as the commission may designate, may earn an aggregate net railway operating income equal to a fair return upon the aggregate value of the railway property used within that rate group in the service of transportation. It is not to be argued that the valuation work now being conducted and approaching completion under the Interstate Commerce Commission should be the sole and only measure of value as the term is used in the preceding paragraph. But it is not to be disputed that this valuation is one of the most important, if not the most important single factor in determining that value. It is perhaps the only tangible, definite, and unmistakable fact which is available to anybody who is charged with determining the "fair value" of railway properties, but, as has been repeatedly pointed out by the courts, the physical value of the properties must be modified by other factors and considered in connection with them in fixing the sum of "fair value."

(*a*) Under the transportation act, the Interstate Commerce Commission is required to designate the limits of rate groups and to determine the aggregate value of railway properties within such groups. Having determined that value as a whole, it shall prescribe rates which will yield as nearly as may be a reasonable return on the value of the properties. If the rate structure is too low, there will immediately arise the question of the confiscation of the property devoted to public service. Therefore, it follows that the value must be established definitely and on legal grounds. The value of each rate group having been determined, it becomes possible to test the rate level as between the different groups and to modify or adjust such rate levels in accordance with the needs of the country as a whole. The valuation work shows the property devoted to common carrier service separately for each state and for the railroad system as a whole, so that it becomes possible to apportion the properties used in interstate, as distinguished from intrastate service, and to fix rates for these two different classes of traffic.

(*b*) Under the same section (15-A) the commission is required to determine the value of each individual railroad property and to ascertain the net railway operating income under the rates prescribed in the preceding paragraph. If this return is in excess of the figure set by the commission as reasonable, one-half of such excess is impounded by the carrier in a reserve fund, the uses of which are described in the act; the remaining one-half is to be recaptured by the commission and added to the contingent fund, from which loans shall be made to railroads in accordance with the provisions of this act. It is therefore evident that the valuation work conducted under section 19-A of the act is essential to the fulfillment of this provision.

(*c*) Under section 5, paragraph 4, the commission is required to prepare and adopt a plan for the consolidation of the railway properties in the United States into a limited number of systems, the par value of the bonds, together with the capital stock outstanding, of which is not to exceed the value of the consolidated properties as determined by the commission under section 19-A, the so-called valuation act. In this paragraph it is expressly provided that the commission shall proceed immediately to the ascertainment of such value of the properties involved in any proposed consolidation. The valuation so fixed shall also form the basis for the rental of property by one carrier to another and the basis of payment for joint use of facilities.

(*d*) Exclusive of the consolidation just referred to, the total value of securities issued by a corporation shall not exceed the value of the properties as determined by the commission, and no carrier may put out a security issue without the appoval of the commission having been first obtained; thus security issues, both existing and proposed, rest directly upon the value as determined under section 19-A of the act.

(*e*) Carriers are authorized to set up, with the approval of the commission, reserve and depreciation funds, and the additions which may be made in any year are based upon percentages of the value as found by the Interstate Commerce Commission in accordance with section 19-A, the valuation act. Both the

*From a statement presented to the House Committee on Appropriations on December 21, 1921.

amount and the uses to which such reserve and depreciation funds may be devoted are expressly set forth in the transportation act.

(*f*) The commission is empowered under the act to make loans to carriers out of the revolving or contingent fund set up as heretofore mentioned and to lease to carriers equipment purchased out of that fund. It is implied in the act that the adequacy of the security for such loans shall be tested by the value of the properties together with other considerations relating to the carrier applying for the loan.

Other Uses

The foregoing are some of the essential uses in the transportation act to which the valuation authorized in section 19-A is required to be put. In addition to these, there are cerain uses to which it may be put, not at present written into law.

(*a*) For 25 years or more prior to the passage of the valuation act, the Interstate Commerce Commission consistently called to the attention of Congress the necessity for a valuation of railroad properties in order that a check of the balance sheets of carriers might be made and the system of accounting for all roads might be standardized.

(*b*) Scarcely less important than the regulatory power of the commission itself is the effect on the investing public of comprehensive knowledge of the financial condition of the railroads. Railroad credit for many years has been impaired to such an extent that it is impossible for carriers to finance their operations on an adequate scale or at reasonable interest charges. Everything which will tend to restore confidence is essential, and a complete inventory and exposition of the assets, financial condition, and operating revenues and expenses is best calculated to produce this result. The impression is broadcast that many railroad security issues are to a greater or less extent "watered," and whether or not this impression be well founded, it is necessary to determine the fact.

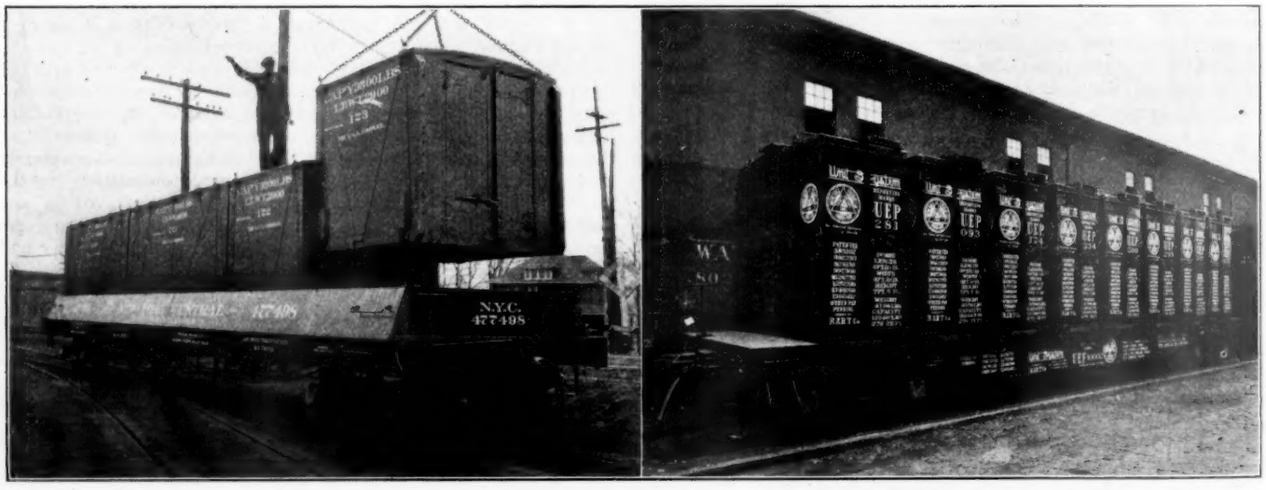
(*c*) Under the Clayton Act, the commission is required to approve in advance of the letting of the contract expenditures amounting to over $50,000 per annum. There has been gathered by the Bureau of Valuation information relating to every conceivable form of construction or purchase, and this should be of incalculable benefit in checking the reasonableness of prices and the character of work to be done under such contracts which the commission is required to approve or deny. It should form the basis for estimates or at least a criterion for checking every new contract or proposed extension.

(*d*) Any discussion of the possibilities of Government acquisition, either outright or in any modified form, can not be intelligently carried forward, nor can any proposed plan be considered, without knowledge of the value of the properties.

(*e*) The valuation work now being performed by the commission should, and doubtless will, when completed, be largely used in connection with the taxation of railroad properties. Closely connected with the question of reasonable railway rates stands the question of reasonable railway taxation. Some few states tax railways on the basis of earnings, but there is no tendency for this practice to become general. The result is that railway taxation fails to show that degree of uniformity which one might reasonably expect in view of the general uniformity of method. Since railway taxes amount to between 4 and 5 per cent of the aggregate of the operating expenses, and since on this account a reasonable charge on interstate traffic may be affected by the manner in which the states administer their taxing laws, it may well be claimed that the valuation of railway properties becomes a matter of Federal concern. As the valuation of each carrier is determined by the commission this figure is served upon the states in which the carrier is located, together with the underlying data showing the apportionment of the property between the several states. There thus becomes available to each state not only the appraisal of the properties within its limits, but also the figures of value for the property as a whole. Each state therefore has at its hand full information upon which it may proceed to fix the taxes of such of the property as lies within its borders. Whether it makes use of this information or not, it is a matter of the highest concern to the Nation as a whole that the methods adopted within the several states be uniform.

(*f*) One of the major features in the accounting report underlying the valuation published by the commission is a financial and corporate history of the carrier. This consists of a full and accurate statement of facts and without any inference being drawn therefrom. Its utility is at once apparent. If much or any of the unsound financing, against which so much popular criticism has been directed, has been practiced, that fact will appear; if not, the record will show for itself. If the former, an exposition of the pertinent facts will do much toward correcting the situation, both by throwing the light of publicity on the subject and by pointing the way toward corrective and preventive legislation. If the latter, a clearing away of suspicion will greatly benefit the railroads themselves, the investing public, and the credit structure of the entire country.

There is just one thing further I should like to say. There are a great many extravagant statements made about overcapitalization and other irregularities. I am firmly convinced that this valuation will throw more true light upon and do more to restore the financial stability of the railroads than anything I know, and I think that the public will have a much clearer conception of the railroad problem, and expenditures will be more clearly explained and scrutinized than has heretofore been possible. Congress will have available all necessary facts on which to base further legislation. I know from long experience that if this valuation had been started years ago, it would have prevented such disastrous events as those on the New Haven and Frisco.



Two Types of Container Cars: On the Left the New York Central Car; on the Right, Design Developed by the River and Rail Transportation Company

Freight Car Loading

WASHINGTON, D. C.

THE NUMBER of cars loaded with revenue freight during the week ended January 21 was 738,275, according to the weekly report of the Car Service Division of the American Railway Association. This not only represents an increase over the week before but an increase of nearly 30,000 over the corresponding week of 1921, when the total was 708,658. For 1920 the total was 804,866. Increases as compared with the corresponding week of last year were shown in the loading of grain and grain products, forest products, merchandise, and miscellaneous freight, the largest increase being shown by the l.c.l. merchandise, while there were decreases in livestock, coal, coke and ore.

Summaries for the weeks of January 14 and 21 are given in accompanying tables. The freight car surplus for the period January 15 to 22 was 396,192, a reduction of 43,000 as compared with the week before. Of the total, 159,109 were box cars, and 183,999 were coal cars.

REVENUE FREIGHT LOADED—WEEK ENDED SATURDAY, JANUARY 14, 1922

District	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded: This year, 1922	Total revenue freight loaded: Corresponding year, 1921	Total revenue freight loaded: Corresponding year, 1920
Eastern	1922	8,350	3,534	39,774	1,808	4,987	817	56,694	57,941	173,905	.....	.....
	1921	6,314	4,396	47,650	1,643	7,597	1,347	42,972	51,880	.....	163,799	201,979
Allegheny	1922	2,514	3,618	42,864	3,428	2,624	1,248	40,634	42,444	139,374	.....	.....
	1921	1,964	4,239	53,555	5,805	2,945	2,998	34,546	43,955	.....	150,007	170,583
Pocahontas	1922	244	75	20,863	197	1,124	22	5,168	2,660	30,353	.....	.....
	1921	135	113	20,957	515	1,039	69	3,910	2,407	.....	29,145	34,263
Southern	1922	4,268	2,598	21,959	500	14,905	474	35,148	29,820	109,672	.....	.....
	1921	3,900	2,094	26,554	650	12,260	1,866	31,204	30,272	.....	108,800	131,219
Northwestern	1922	15,743	11,162	9,664	986	14,201	353	23,539	26,182	101,830	.....	.....
	1921	13,617	10,157	6,897	1,360	12,291	991	22,885	28,063	.....	96,261	116,745
Central Western	1922	13,891	12,707	20,073	229	4,415	251	28,858	29,622	110,646	.....	.....
	1921	14,223	12,176	21,705	300	3,249	1,892	27,617	30,178	.....	111,340	124,975
Southwestern	1922	5,177	2,471	4,048	110	6,234	686	15,504	20,867	55,097	.....	.....
	1921	5,332	1,990	5,478	90	5,233	516	14,897	22,967	.....	56,503	60,760
Total all roads	1922	50,187	36,165	159,245	7,258	48,490	4,451	205,545	209,536	720,877	.....	.....
	1921	45,485	35,165	182,796	10,363	44,614	9,679	178,031	209,722	.....	715,855	.....
	1920	40,820	38,698	207,861	10,645	59,014	10,745	145,494	327,247	.....	.....	840,524
Week ended:												
January 14	1922	50,187	36,165	159,245	7,258	48,490	4,451	205,545	209,536	720,877	715,855	840,524
January 7	1922	40,673	25,658	136,982	7,008	41,071	4,321	171,786	178,493	605,992	697,641	830,673
December 31	1921	30,075	24,567	105,662	6,424	31,406	4,883	170,061	157,956	531,034	602,368	612,741
December 24	1921	36,793	22,958	135,852	7,140	45,518	5,489	210,929	201,248	665,927	648,406	684,784
December 17	1921	47,383	33,861	134,842	7,145	48,690	5,535	221,163	228,384	727,003	802,271	806,734

REVENUE FREIGHT LOADED AND RECEIVED FROM CONNECTIONS

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY JANUARY 21, 1922

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded: This year 1922	Total revenue freight loaded: Corresponding year 1921	Total revenue freight loaded: Corresponding year 1920	Received from connections: This year 1922	Received from connections: Corresponding year 1921	Received from connections: Corresponding year 1920
Eastern	1922	10,035	3,011	37,637	1,707	5,542	687	58,969	61,486	179,074	.....	.....	196,914	.....	.....
	1921	6,579	3,961	45,223	1,443	7,378	890	43,230	51,506	.....	160,210	190,375	.....	186,917	205,158
Allegheny	1922	2,823	2,929	46,823	3,613	2,763	916	43,610	43,796	147,273	.....	.....	97,859	.....	.....
	1921	2,374	4,184	47,354	5,680	3,196	2,473	35,266	43,710	.....	144,237	162,168	.....	103,229	116,082
Pocahontas	1922	250	60	21,383	185	1,082	71	5,230	2,722	30,983	.....	.....	11,575	.....	.....
	1921	181	118	19,130	440	1,097	100	4,624	1,731	.....	27,421	31,046	.....	12,854	17,821
Southern	1922	4,546	2,187	23,061	488	15,734	588	36,338	30,539	113,481	.....	.....	60,666	.....	.....
	1921	3,960	2,351	23,933	541	13,207	1,163	33,017	32,878	.....	111,010	128,514	.....	60,204	78,249
Northwestern	1922	14,823	9,792	8,440	900	13,941	477	24,175	26,428	99,976	.....	.....	41,645	.....	.....
	1921	13,925	10,217	6,587	1,488	13,506	950	22,741	26,406	.....	95,820	108,257	.....	44,314	52,973
Central Western	1922	14,536	11,512	21,321	226	4,788	767	30,123	29,461	112,734	.....	.....	43,065	.....	.....
	1921	14,879	12,736	20,942	282	3,639	1,896	27,609	29,618	.....	111,601	123,848	.....	43,403	67,117
Southwestern	1922	5,168	2,470	4,426	148	6,478	763	15,197	20,104	54,754	.....	.....	41,727	.....	.....
	1921	5,209	2,151	5,010	110	6,108	433	15,082	24,256	.....	58,359	60,658	.....	44,096	51,600
Total all roads	1922	52,181	31,961	164,091	7,267	50,328	4,269	213,642	214,536	738,275	.....	.....	493,451	.....	.....
	1921	47,107	35,718	168,179	9,984	48,131	7,905	181,569	210,065	.....	708,658	.....	.....	495,017	.....
	1920	37,211	36,397	189,066	10,367	58,720	10,795	148,466	313,844	.....	.....	804,866	.....	.....	589,000
Increase compared	1921	5,074	....	....	....	2,197	....	32,073	4,471	29,617	.....	.....	.....	.....	.....
Decrease compared	1921	....	3,757	4,088	2,717	....	3,636	.....	.....	.....	.....	.....	1,566	.....	.....
Increase compared	1920	14,970	....	....	....	....	....	65,176	.....	.....	.....	.....	.....	.....	.....
Decrease compared	1920	....	4,436	24,975	3,100	8,392	6,526	.....	99,308	66,591	.....	.....	95,549	.....	.....
January 21	1922	52,181	31,961	164,091	7,267	50,328	4,269	213,642	214,536	738,275	708,658	804,866	493,451	495,017	589,000
January 14	1922	50,187	36,165	159,245	7,258	48,490	4,451	205,545	209,536	720,877	715,855	840,524	458,674	493,696	627,293
January 7	1922	40,673	26,658	136,982	7,008	41,071	4,321	171,786	178,493	605,992	697,641	830,673	393,300	498,921	596,859
December 31	1921	30,075	24,567	105,662	6,424	31,406	4,883	170,061	157,956	531,034	602,368	745,446	380,858	457,732	591,437
December 24	1921	36,793	22,958	135,852	7,140	45,518	5,489	210,929	201,248	665,927	648,406	684,784	455,526	522,421	588,644

Freight Transportation de Luxe

THE DURANT Motors Corporation, New York city, replying to our inquiry concerning recent large shipments of automobiles, and correcting an error in a news item printed in the *Railway Age* of January 14, gives the following notes of three train-loads sent in December to California. Availing themselves of the advertising value of these full train loads the shippers arranged to have the movements of the trains so timed as to bring them to certain cities at the most suitable hours for an effective display to the public while the train was being held for inspection or for change of locomotives. This, in part, explains the varied character of the itineraries. The shippers' letter says:

"We have thus far made no shipments to the Pacific Coast through Canada except one trainload of 30 freight cars (150 Durant touring cars) which went over the Grand Trunk from Buffalo through Toronto, Ont., and thence to Sarnia, Ont. This was the shipment of December 14. The three shipments were routed as outlined on following page.

"December 5, solid trainload of 150 Durant touring cars in 30 freight cars, for Oakland, California; sent via Pennsylvania to Toledo; Michigan Central to Chicago; Chicago & Northwestern to Council Bluffs; Union Pacific to Ogden, and Southern Pacific to Oakland.

"December 14, second shipment, 160 Durant cars in 32 freight cars, via Pennsylvania to Buffalo; Grand Trunk to Chicago by way of Toronto, Port Huron and Lansing; Chicago, Milwaukee & St. Paul to Kansas City and thence over

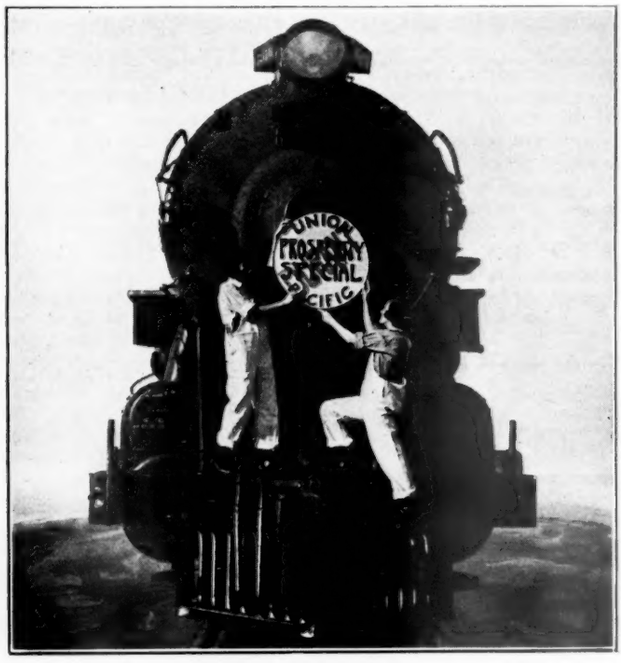
Photo by Underwood & Underwood

One Hundred Cars of Automobiles Starting a Transcontinental Trip on the Pennsylvania

the Chicago, Rock Island & Pacific, the El Paso & Southwestern, and the Southern Pacific to Oakland.

"December 30, the largest single shipment of any one commodity ever carried across the continent; 500 Durant touring cars carried in 100 uniform steel freight cars of the Pennsylvania. It was routed via Pennsylvania to Chicago and thence over the Chicago, Milwaukee & St. Paul, Union Pacific and Southern Pacific to San Francisco. This train was hauled by two large locomotives. To make the grades through Pennsylvania additional engines were used and the train was divided. At Chicago where officers' cars were attached to carry representatives of the three western railroads along with the train to the Coast, the transfer from the Pennsylvania Lines to the St. Paul road was made at the Union Passenger station. Here the seals of the cars were broken and the shipment inspected.

"These trains were made up at the Greenville yards, south of Jersey City, and this last one was entered in the train



On the Union Pacific

orders entirely across the continent as 'The Durant Prosperity Special.' W. J. Bailey, traffic manager for Durant Motor Company of New York, accompanied the train from New York to Omaha."

At Omaha it was decided to placard the train more effectively and a marker was displayed on the front of the locomotive, as shown in the illustration. It is assumed that after seeing the 100 cars behind the engine no one was left in doubt as to the appropriateness of the name.

On the Canadian Pacific

Division Accounting—An Operating Viewpoint

The Centralized and Decentralized Plans Contrasted—Methods Worked Out on the New Haven

By J. E. Slater
Special Assistant to General Manager, N. Y., N. H. & H.

PART I

THE ACCOUNTING of expenses by operating divisions was instituted on the New Haven about five years ago, several years after it had been developed successfully on a number of other railroads. Since that time the original plan has been dropped and another installed. The experiences with the two plans and the reasons for the failure of one and the success of the other, may throw some light on this problem as it exists today.

In the first place it should be stated that this article is written *entirely from the viewpoint of the operating department.* It does not take into consideration the value of division accounting to the accounting department or the merits of any plan of division accounting as seen through the eyes of accounting officers. The operating officer is interested in accounts as indices of operating efficiency. He demands a scheme of accounting which provides currently accurate statistics of performance and cost, subdivided in such a manner that individual subordinates can be judged on their individual performances. To the extent that division accounting meets these requirements better than other plans, it is of value.

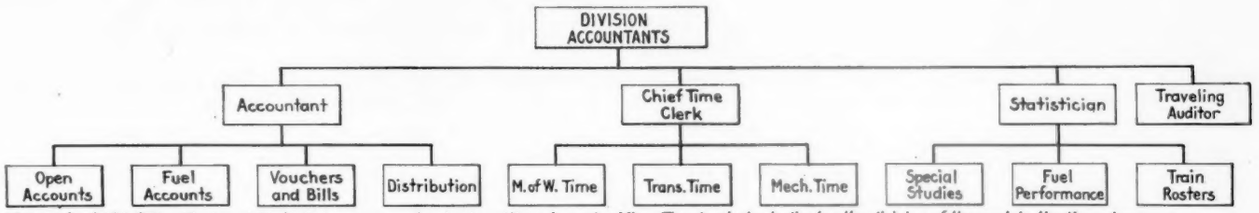
In 1916, the New Haven had relatively few divisional statistics of performance and cost. The cost data available related solely to payrolls. To obtain a complete statement of the expenditures made on any one division it was necessary to obtain information from five or six sources, some of these being on the divisions, others at the general accounting offices. In order to correct this situation and provide detailed indices of divisional performance and cost, divisional accounting was established.

Before deciding upon the plan and method, a study was made of the various systems already in effect. This study developed that there were two general plans radically different with respect to organization.

The Centralized Plan and Decentralized Plans

The first of these may be designated as the centralized plan. Under this plan, the entire division accounting organization is concentrated in one office, usually at headquarters in the office of the auditor of disbursements. The allocations to divisions are made by analysis of payrolls, open accounts, vouchers, bills, etc., and such other supplementary data as may be requested from time clerks, material clerks and others located at division headquarters. All of the data necessary for the compilation of the various reports are in the one office, and all of the work, with a possible exception of making out the payrolls, is done in this central accounting bureau.

The second plan may be called the decentralized plan. Under this organization, all of the work of compiling the expenses for a designated division is done by a bureau stationed at division headquarters. Any charges properly made against that division must pass through the division accountant's office and no charges from any other source are permitted in the account for that division. The organization is sometimes under the jurisdiction of the local operating officers and sometimes under the accounting department,



Accountant, Chief Time Clerk and Statistician represent actual positions in each office. The chart also indicates the division of the work in the three bureaus.

Organization of Local Division Accounting Office

but in either case the essential element of the scheme, namely, a local organization on each division, is retained.

The centralized plan was adopted by the New Haven in 1916. The reasons at that time were:

(1) The complicated structure of divisional lines which rendered extremely difficult allocation of expenses to the actual operation on each division.
(2) The greater facility of supervising compilation of the large amount of necessary data.
(3) The greater ease of standardizing methods.
(4) The fact that fewer changes in accounting methods would be necessary at the source.
(5) The lower cost.

New Haven Divisions Not Well Defined Operating Units

It will be noted that only the first of these reasons directly concerns the operating department. The others have to do solely with accounting department organization and administration. The first reason is, however, a very important one. The New Haven differs from most lines on which division accounting has been established in that its divisions are not well defined operating units. Each division is of necessity made up of a network of main line and branches. The result is a short mileage along any one route. Engines and crews are not confined to the division to which assigned. For example, passenger train crew runs from New York to Boston cover portions of five divisions and engine crew runs from New Haven to Boston cover portions of four divisions. The train service payrolls of one division, therefore, cover service on several others and fuel loaded on tenders at one division enginehouse is consumed on parts

of other divisions. The allocation of these expenses, therefore, to the division on which the expense is actually incurred is obviously more easy in a central bureau where all the data covering the runs are available.

Division accounting under the centralized plan was continued until the early part of 1918 when it was discontinued as a war economy. The experience of these eighteen months, however, demonstrated that, from the operating viewpoint, this method was not satisfactory. The reasons were:

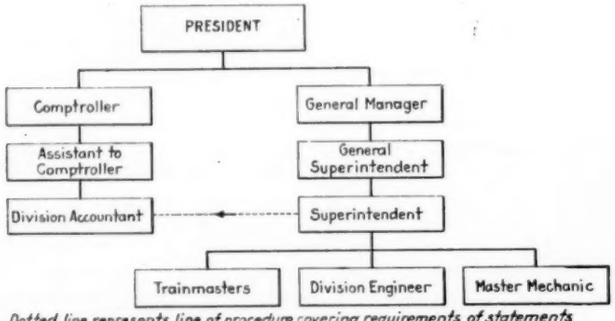
(1) The figures failed to reflect accurately the operating results on each division.
(2) The plan did not provide figures promptly after the close of the period.
(3) No supplementary data were given to the division forces in addition to regular statements.

Limitations of Centralized Plan

The failure of the statistics to reflect actual operating conditions was due to the attempt to allocate all expense to particular divisions. This resulted in superintendents being charged with items over which they had no control. Moreover, other factors were included, such as journal entries carrying adjustments, which often changed radically the results shown. When these facts became apparent to the division officers, their confidence in the statement was naturally lessened. This lack of confidence was accentuated by the fact that they possessed no detail of the items which brought forth criticism.

The failure of this system to produce the statistics promptly was also a serious hindrance to the satisfactory results under the centralized plan. It is axiomatic that statistics must be up-to-date to be of value. Under the centralized plan, the allocation of expense followed the closing of the books in the general offices. The statements containing the divisional information were issued about three weeks later, or six weeks following the period covered. Statistics issued so long after the close of period cannot be of material assistance to operating officers.

The failure of the centralized plan to provide supplementary data in addition to regular statements was due to the



Dotted line represents line of procedure covering requirements of statements and information.

Line of Responsibility of Division Accounting Organization Under the Accounting Department Plan

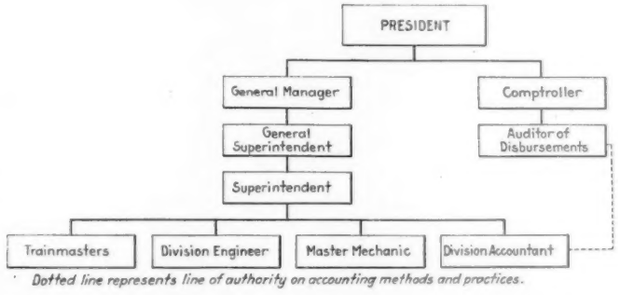
fact that the figures were not compiled locally. In the central bureau, certain information was collected, separated and allocated to divisions, but the peculiar and differing requirements of individual officers could not be met. The net result of the system from the view point of the division officer was a large and complicated statement which reached him about six weeks after the close of the month, and which contained no detailed and specific data compiled in accordance with his views and requirements.

It will be noted that the net result of the centralized plan, from the operating view point, was three fundamental disadvantages, largely inherent in the plan itself, as opposed to one advantage.

In 1920, as a part of the general plan to standardize and improve accounts and statistics, consideration was given to the re-establishment of division accounting. For the reasons already enumerated, the centralized plan was discarded and a detailed study made of the problems to be met under the decentralized plan.

Reasons for Adopting New Methods

Chief of these questions was the line of authority and responsibility. On most railroads where the decentralized plan is in effect, the division accountant reports to the superintendent, receiving instructions as to accounting methods and practices from the accounting department. Under the alternative plan, the division accountant reports to the accounting



Dotted line represents line of authority on accounting methods and practices.

Line of Responsibility of Division Accounting Organization Under the Operating Department Plan

department, but co-operates with the operating organization and gives division officers the information which they require. After a careful study of the advantages of the two plans, the latter was adopted.

The reasons governing the New Haven officers in making this choice were:

(1) The policy in recent years of concentrating all accounting and compilation of statistics in the accounting department.
(2) The difficulty in former years in obtaining accurate and uniform statistics from operating offices.
(3) The necessity under the operating department plan of utilizing a considerable force of traveling accountants, to check the work on the divisions and to maintain standardized methods and practices.

The first of these reasons being a matter of policy requires no comment. The second reason is based on a practical situation of great importance. Superintendents, for the most part, are not interested in the methods by which certain statistical results are obtained. If these results accurately reflect operating performance, the statistics themselves are of interest. The methods are likely to be waved aside as mere book-keeping. It is admitted that any superintendent is materially assisted by accounting knowledge. This fact is undoubtedly the controlling element in the admirable practice on the Great Northern of requiring certain accounting training of its superintendents. Nevertheless, on most railroads the majority of the superintendents do not have this knowledge, and view accounting problems as of relative insignificance.

With this practical situation as an initial problem, one must realize the great importance of proper supervision of methods employed. It is admitted that the results are more important, but to produce the results, the methods must be adequately supervised. If the superintendent is not interested or has not the necessary knowledge to provide this supervision, a corps of traveling accountants must be maintained. This method, however, cannot produce as favorable results as when the division accountants report to the accounting department and are held strictly responsible for the use of proper methods.

Division Accountant as a Member of the Superintendent's Staff

Nevertheless, it must be admitted that there are important advantages in making the division accountant a member of the superintendent's staff. Just as in the alternative plan, the division accountant is in closer touch with the accounting practices and problems, so, if in the operating department, he is in closer touch with operating problems. The operating officer is interested in results, both as a measure of his own performance and as a guide to check the performance of his subordinates. If the division accountant is in the operating department, he, too, is interested in the results and consequently is more likely to check and analyze them and to furnish the answer to his superintendent. In other words, the point of view of the division accountant is largely influenced by that of his superior, and it is as important that he be interested in results as in the technique which determines how these results should be compiled.

A second important advantage of the plan making the division accountant an operating representative, is the view point of the superintendent himself. It is human nature that a man has more confidence in results he has himself obtained than in those worked out by others. Likewise, a superintendent is likely to be more interested and to have more confidence in results obtained by his own subordinates than in those presented to him by an officer in another department.

Co-operation Between Departments Necessary

Regardless of the relative merits of either plan of organization, both require complete co-operation between accounting and operating departments. Both groups of officers are vitally interested in the questions of the accounting organization and personnel. Both are especially interested in the selection of the proper men for division accountants. The ideal man should have a thorough knowledge of accounts, and equally important, an understanding of operating conditions, problems and requirements. He should be as watchful for weaknesses in operating performance as for accounting errors. He should keep the division staff posted on the many details of performance and cost which the latter cannot follow personally from day to day. His aim should be to furnish not only all data which may be called for, but to furnish information which is not requested. In the latter rests the greatest possibilities for division accountants.

The efforts made by the New Haven to insure the proper amount of co-operation is reflected in the organization and personnel in the division accounting offices. Of nine division accountants, five had their principal experience in the operating department, and some of these had previously had no accounting department training. Moreover, the division accountant has three principal assistants, an accountant, a chief time clerk and a statistician. Of these, the first is naturally an accounting man with all or most of his experience in the local or general accounting offices. The second must, of necessity, have had long training in time keeping, and most of the chief time clerks formerly held that position under the superintendent. The third bureau head in almost every case was taken from the operating department, and is expected to know the operating details and problems of the division to which he is assigned. From this it will be readily seen that from an organization point of view every attempt has been made to reach the proper balance between the two departments and to establish that close co-operation which is so essential.

Interesting Suggestions at R. B. A. Dinner

Included in Addresses by Eugene Meyer, Jr., and Frederick P. Fish—Annual Meeting Takes Important Action

About 1,600 railway executives and railway supply men were in attendance at the thirteenth annual dinner of the Railway Business Association held at the Waldorf-Astoria Hotel, New York, on February 1. Addresses were delivered by Eugene Meyer, Jr., managing director of the War Finance Corporation, and Frederick P. Fish, chairman of the National Industrial Conference Board. President Alba B. Johnson gave an analysis of the present situation, made especially interesting by the inclusion of a number of humorous definitions of an optimist. Charles M. Schwab, who was present, was also called up to make some remarks.

Eugene Meyer's Address

Mr. Meyer spoke of the work which has been done by the War Finance Corporation with reference to the sale of the equipment trust certificates and with reference also to the assistance given to assist in stabilizing conditions in industry.

"The program for marketing railroad equipment trust certificates from the Government is substantially completed," he said, "and the needs of the administration are amply supplied out of the funds already raised. It is merely a question now if anybody wants some more."

Continuing he said in part:

"If anyone thing has made difficulty for the railroad industry and for the industries that depend upon the railroads more than any other, it has been the decline in the gross volume of business. With large fixed charges, inelastic charges that cannot be controlled for the most part, your industries must run at or near the capacity of the transportation plant to be prosperous. You cannot control your fixed charges, your taxes or a large part of your overhead; and more perhaps than any manufacturing industry you must have a volume of business approaching the capacity of your plant in order to be even fairly prosperous.

"It was an unfortunate fact that when the railroads were returned from the Government to private control there existed a freight blockade and a congestion in traffic without precedent, I think, in the history of this country in time of peace. The financial credit strain existing at that time and subsequently was accompanied by collapsing markets and collapsing prices, and when the raise in the freight rate schedules was made effective in the fall, that collapse in prices and markets was well under way. It was unfortunate, perhaps, that when the freight rates were raised the collapse in the markets and prices was becoming acute, because it led to an altogether false and exaggerated idea of the relationship of the freight rate increases and the diminished volume of business and diminished volume of tonnage for the railroads. It is always difficult to trace cause and effect in such complex situations as we have been living through in the past year and a half, but with the strain and worry in every department of our economic activity it was not unnatural that every department of industry sought to find in some other activity the cause of its troubles.

"The railroads today find themselves between the pro-

ducers and the consumers of the country; the producers who do not get an adequate return for their labor, their risk and their capital involved: I mean the agricultural producers; and the consumers that pay, they think, too much for their necessities. This position between these two elements is one that you have to face in this industry. There is in every drama a villian, and you are in danger of being cast for the role unless you can analyze the facts, present them, and make clear to the country the causes and proper remedies for the difficulties.

"The problem of the adjustments of the railroads and allied industries to the new conditions that confront you, have to be met. These adjustments have to be made, I feel, with somewhat of a radical turning of the railroad minds from old conditions. I do not see an immediate prospect of the wholesale repeal of legislation as an immediate relief in the near future. Others have pointed out that the difficulties of the railroads are enchanced by the Panama Canal, good roads built at public expense and financed by tax-free securities, and the gasoline engine without a franchise and without great taxation competing with railroads in parts of this country. But these things have come to stay. We must face the future and try to deal with the problem in the light of the facts as they are.

Seasonal Fluctuations

"One important and revolutionary factor in the last generation which seems to me perhaps to be very much neglected in the consideration of the railroad situation, is the development of a system of national marketing. Coming as I do in contact with the various activities in various parts of the country, this fact has struck home as one of the important fundamental features to which perhaps too little importance is paid.

"You know that in the past hundreds of thousands of freight cars have been fully employed in October and unemployed in March. But as the wheat from the northwest and the cotton from the south and all the commodities were rushed to market in the fall months freight congestion, car shortage, developed and interfered with economic operation, and then in the spring, when it was all rushed to market by methods confused and disorderly and undeveloped, and unworthy, I think, of a civilized nation, we sat down in the spring with no business for the railroads and lots of idle cars.

"Your membership has been co-operating, railroad men and men of the railroad industries in every way that I have ever been able to think of asking them to co-operate. During the war, and when the appropriation failed in March, 1919, and again during the past few months, the railroad industry have accorded the War Finance Corporation every possible help. It has been our good fortune in recent months to have the power and ample resources to go into this western country where the great bulk of our producers live who are suffering and have been, and do something to help them. Corn today in Iowa is selling for 35 cents on the farm, without any particularly important increase in the contract market, as against 15 to 18 cents when I was there in September.

Sheep are selling at a fair price. Cattle have ceased to be sacrificed to breeding herds in immature stock. The feeding operations in the Corn Belt have been restored to a great extent, and in all of this work we have had your co-operation, and I hope we will continue to have it. We have had to ask in the Western country that the bankers and business men aid the stock growers, the cattle men, who have been in great distress, by creating banking institutions to help us make our funds effective, I mean companies known as cattle loan companies. And your railroads and business men in these communities have come forward and backed these enterprises, these companies, with new capital in those distressed states, so that today we have more capital invested, I mean private capital, in the live stock financing companies, in the new companies, than existed on October 1st in all the companies that had grown up previously to that time, and these new companies are enabling us to lend on a safe basis by millions in the great states where the cattle industry is so fundamentally a part of all of our industry, and the railroad men who are interested in that territory and who have followed our work with close interest, have been most helpful in stimulating the public sentiment to form these new companies that mean salvation to those people.

F. P. Fish's Address

Mr. Fish, in his address, discussed principally railroad labor matters. He began his address with an analysis of the present labor situation. He then suggested that one of the difficulties at present was the fact that matters of rates are handled by one body and matters of wages by another, and he proposed also that a study of the entire railway situation should be made by an impartial public board composed of such men as Elihu Root, Charles Evan Hughes, etc. He also made a plea for the incorporation of labor unions and showed wherein that would help the situation measurably.

With reference to the Interstate Commerce Commission and the Railroad Labor Board, he said: "It is not enough that these two Boards will act in the utmost good faith, but they will co-operate, they will consult together; it is logically and from a business point of view utterly absurd that the two functions should be separated. I am not going to make any suggestions as to how it should be done. There are many ways that obviously occur to any of you. It may well be that the whole thing should be put in the power of one board or one commission, and whatever is done that commission should be large enough and should be so well organized that it could not only deal with all these questions and take the whole responsibility of correlating the expenses which they control with the rates which they control so as to get the results that the Esch-Cummins Act was intended to make, but it should be so organized that that thing and all other questions coming before that board should be decided promptly. As I look back over what I have seen of the action of the Interstate Commerce Commission during all these years, the one great criticism that I make upon it is that their action has never been prompt. There have been delays after delays in the settlement of questions that should be settled immediately one way or the other, and I firmly believe that one of the great things that must be produced and developed in the near future is such an organization as will act comprehensively and will act promptly.

Mr. Fish's most interesting proposal was that of an intensive study with a view primarily to formulating principles by a body of impartial leaders of public thought. On this subject he said:

"It is one of the difficulties which we find with reference to all these innumerable boards that have been established during the last thirty or forty years, national and state, that they are turned loose and without any established principles to guide them, thereby being utterly different in character from the courts, which have developed logically from the earliest traditions of mankind. They have principles, and it is the function of the courts to develop and apply those principles as new cases arise. But these commissions have had largely to make their own principles, and they have drifted along from day to day, building up certain traditions. Sometimes they have recognized that they have made mistakes, and have corrected them, but generally it has been a growth without any solid fundamental principles which are to be developed and applied.

"One thing that I would most respectfully and humbly suggest is that today there is nothing that could be done that would be more important among those things that can be

done under the present legal situation than all these boards, particularly the Interstate Commerce Commission and the Labor Board, which has had but a short experience and has acted with the utmost good faith apparently, in the face of tremendous difficulties, should sit down today recognizing that the conditions of today are utterly unlike those not merely of thirty years ago but of five years ago or six years ago, and see if they cannot work out for themselves a more definite and settled series of principles than any that they have, and principles that are not based merely upon tradition or upon the situation as it existed five or thirty years ago, but that are brought up to date, that fit the conditions of this time, so that in their rules, in their regulations, in their laws which they establish and in their methods, they shall deal not with an academic problem, which may be dealt with in any old way—for an academic problem has little relation to realities—but with the exigencies of today, which is the period and the time with which we are tremendously interested.

"I go even farther with a suggestion that very likely will not receive approval from any source, and that is this: The changes in the situation from thirty years and seven years and six years to the present time, when you stop to consider them, are enormous. There is hardly any relation between the two, and yet we have these schemes of regulation, these boards for regulation, that were created when the situation was utterly different from what it is today, and which have practically drifted from that time to this. Would it not be a most excellent thing for the railroads, a most excellent thing for this country and for every individual in this country, if there could be an intensive study made of the entire situation which would determine what, in view of the present conditions, is required by way of regulation, how far it should go, what is essential, what is unessential, what should be the nature and character of the regulation, what methods should be employed, and how the whole matter should be correlated in such a way as to fit present conditions. Now, such an intensive study as that, which I suggest, can never be made by Congress. Congress has too much to do. Its affairs are so complicated that it cannot deal with such problems with intelligence, and the result is sure to be a want of clearness, a want of certainty, want of sanity, such as I think you can see in the Esch-Cummins Bill, which to me, as I have already stated, is evidently the result of an effort on the part of Congress in the utmost good faith to help in this situation. The board that I would suggest is one that is made up of the best men in this country, not necessarily railroad men, not necessarily laboring men, not the favorite tripod organization of laboring men, railroad men and the public, but men who are selected because they are intelligent, because they are strong. because they are used to dealing with great questions, and because they have the ability and the power and the intelligence to get help from everybody, and after they have got the facts, have the power and capacity to study those facts and the imagination to devise ways and means for putting the matter in the best possible shape. The type of men I have in mind for such a board would be illustrated by Elihu Root and by Mr. Hughes, eminent public citizens. They were put into positions for which they had no experience, political, international, and they have made good, and they would have made good anywhere else. There are a good many such men in this country, and if there was a real effort made to find them, the responsibilities of such a job, the fact that it is a matter of such great public importance, would attract them. I respectfully submit, for your consideration, the desirability of an immediate complete survey of this whole situation by outside men, who will study it thoroughly and intelligently, and report, and, by their report, the public could be well informed. On their report, Congress could act safely, accepting or rejecting whatever their specific recommendations were, but in every case finding recommendations that were the result of careful thought and so put that their validity could be measured.

Annual Business Meeting

The feature of the annual business meeting of the Association held on Wednesday morning was the passage of a resolution opposing the creation of a commissioner-general of transportation as proposed by the railroad committee of the Chamber of Commerce of the United States. (*Railway Age* of January 28, 1922, page 273.) The resolution which was adopted only after some discussion, concluded with the words: "An officer designated as the President's representative to discuss railway problems with committees of Congress and federal agencies, including the Interstate Commerce Commission, would be a wholly new feature in our government, for which we see no occasion and in which we fear the possibility of pressure tending to impair the independence of those charged with railway regulation or legislation."

The meeting received and acted on the report of the executive committee, the report of the committee on equipment policies, etc., and elected officers for the ensuing year.

The report of the committee on equipment policies dealt chiefly with the matter of automatic train control. With reference to the Interstate Commerce Commission's recent order, the report contained the statement, "Concerning . . . whether or not the time is suitable from the financial point of view for these installations, most, and we have no doubt all, of the carriers view with grave anxiety the confirmation of any such order at this time."

Resolutions

The resolutions which were adopted follow:

I. Railway Credit

We welcome the growing recognition that the pervasive benefits to flow from resumption of large-scale railway buying can be brought within reach only through financial rehabilitation of the roads. An indispensable requisite is new capital and hence investors' confidence. Of such confidence the essential condition is that compared with other enterprises railroads shall yield an attractive income and that stability in this respect shall be forecast by the public and governmental attitude. Such attitude will take concrete form in the degree of steadfastness with which volunteers organize and labor to preserve in the Transportation Act and its administration the policy of rate-regulation designed to yield adequate railway income. Occupational groups are coming to a better understanding. This will bring fuller comprehension of the stake which each group has in enabling the railways to resume large buying and will promote harmonious action to accomplish the necessary reassurance of investors.

II. The Way to Business Recovery

Return of general prosperity can in no way be so effectively promoted as through resumption of large railway purchases. Industrial, mercantile and agricultural shippers have a greater concern in adequate railway income than in lower rates. Factory and farm alike are suffering from curtailment of markets through impairment of buying power. The war abnormally enlarged mines and mills, which in many cases are letting demand approach existing capacity before creating new. The railroads on the contrary, due to restrictions affecting credit, came to the war period with serious arrearages of provision, which have been aggravated during and since federal control. A relatively small gain in traffic would overtax facilities again as in the fall of 1920. The underdevelopment and undermaintenance of the railroads warrant replacements, improvements and extensions vast enough to use all the capital which would be available under the best conditions. Large railway purchasing, in itself prudent and far sighted, would start up industry and trade. It would readjust prices by re-establishing a balanced relation between farm products and the manufactured goods for which they are exchanged. By reviving the pay-rolls in every community it would bring back the buying power throughout the United States which always and especially now is the farmer's chief reliance, and enable him to purchase miscellaneous commodities in normal volume.

III. Transportation Act

We favor a reasonable experience of the Transportation Act of 1920 without modification of the rule of rate-making. Since

the railways were relinquished to their owners conditions have been extremely abnormal and are unlikely to recur. The Commission has said "The rate adjustment cannot with advantage be made dependent upon fluctuations in traffic * * * The duty cast upon us by Section 15a is a continuing duty and looks to the future * * * What is contemplated by the law is that in this exercise of our rate-making power the result shall reflect our best judgment as to the basis which may reasonably be expected for the future to yield the prescribed return." Judgment requires experience. Experience should have time to develop before we subject the Commission, the users of transportation, the country and the railway managers to another legislative upheaval. Amendments can be intelligently considered only after a period of average tonnage and average gross earnings under moderate rates and under labor cost adjusted to levels prevailing in other employment.

IV. Unified Control

Proposals for repeal of the federal control established in some sections of the Transportation Act of 1920 show that certain misunderstandings are not yet obsolete. Congress has been urged to restore State control of car service and of rates. It is argued that State commissions give shippers more satisfactory response. The fact that the car supply is national, the seasonal mobilization at points of demand necessarily centralized and the State authorities helpless to conscript cars as the Interstate Commerce Commission can and does, for movement across State lines. What provides the national car supply is the financial strength of the individual road, whose revenue comes from its total traffic—about 15 per cent state hauls and the rest interstate hauls taking rates based upon the sum of the locals. Neither as to car service nor as to rates has the federal commission interfered with the state authorities except in major emergencies and then only after consulting them. We favor preservation of federal control where state regulation conflicts with federal.

V. Responsible Rate Revision

Many shippers and some leading traffic associations refrain, in our judgment wisely, from attempts at political pressure in rate revisions. They proceed instead in an orderly manner by negotiation with the carriers or on appeal from them by presenting testimony and argument before the Interstate Commerce Commission as before a court. Statements and proposals affecting rates which federal executive officials or members of Congress may present are apt to be ex parte and obstructive rather than helpful in the quest for wise action. In discouraging rate revision by influence and clamor nobody has a greater stake than the shippers. If the Commission succeeds in its task of establishing a rate structure stable as well as satisfactory in other respects the shippers will enjoy efficiency of transportation, regularity of railway purchases as an offset against business fluctuations and fixity of competitive rate relations made possible when general rate revisions are infrequent. The Commission can perform its function only if it has public support for an administration of the statutory policy based upon its long and wide experience and its continuous current survey of the situation as a whole.

VI. Commissioner General of Transportation

Having considered the summary of recommendations reported by the railroad committee of the Chamber of Commerce of the United States to the board of directors for consideration at the meeting of the National Council to be held in Washington, D. C., February 8 and 9, 1922, at which time that body will be asked to advise the board of directors on the questions involved, the Railway Business Association opposes the creation of a Commissioner General of Transportation for the purposes set forth in that report. An officer designated as the president's representative to discuss railway problems with committees of Congress and federal agencies, including the Interstate Commerce Commission, would be a wholly new feature in our government, for which we see no occasion and in which we fear the possibility of pressure tending to impair the independence of those charged with railway regulation or legislation.

VII. The Labor Board and the Commission

The Interstate Commerce Commission has said: "While the law makes no provision for co-ordination between the Labor Board and the Commission, the desirability of contact between the two bodies is appreciated. Since the creation of the Labor Board informal conferences have been held from time to time, and will without doubt be continued in the future. We have been particularly solicitous to procure and have at hand such statistical information as may aid the Labor Board in its work." We urge initiation and maintenance of such contact between the Labor Board and the Commission as will assure a relation of labor cost to net railway income fair alike to the employees, the railways, the shippers and the public.

VIII. Shippers and the Labor Board

In the adjustment of railway labor disputes shippers and other citizens are parties in interest. The public has a permanent stake in continuity of service. Its concern is supreme in the restriction of operating cost to a level which under rates that move the traffic will yield net income sufficient to support railway credit and so provide adequate facilities without resort to government ownership and deficits taken from the tax levy. Employers of labor in the field, forest, mine and mill are entitled to protection against government action which raises the cost of railway labor, for which they compete, above levels which other industries can pay and then pyramids their burden by assessing upon them in freight rates the increased cost of the railway labor. Cases before the Labor Board involve interpretation of the law and determination of administrative policy. The Labor Board should give shippers the fullest opportunity to be heard. Besides according shippers their clear right this course will give dignity and stability to the Board itself by bringing shippers' advocates off the hustings into a proceeding which will and should acquire a quasi-judicial atmosphere. We hope that the Board will hereafter permit shippers to intervene as parties.

IX. Stability of Railway Purchases

We reaffirm our conviction that railway purchases prearranged for periods when general business is dull would tend to stabilize prosperity in every field and promote economy in railway management. We note with encouragement the attention that the Department of Commerce, committees of Congress and business associations have been giving this subject, broadened to embrace public works and public utilities. Stable purchases by large buyers would minimize unemployment of labor in every occupation. It would cut down idleness of plant and of organization, permitting a smaller investment and overhead to do the total work of each decade. This would tend to reduce interest rates and to liberate capital for development of the country in other directions. It would enable the units which resorted to it to buy when cost of labor and materials is lowest. Public works would bear more lightly on the tax-payers, while railroads and public utilities could operate satisfactorily on lower rates. Facilities would be maintained and enlarged adequately for each recurring peak of load. By tending to keep normal the industrial and commerical payroll and hence general consumption of farm products it would help stabilize the farmer's output in volume of demand and in price. For realization of such a policy it is requisite that its desirability be generally recognized by those who have responsibility for construction programs and that advance financial provision be made possible by effecting in ways consistent with the public interest an accumulation and reservation of funds and credit in prosperous years to be drawn on for vigorous maintenance and improvements in dull years.

X. Income Surtax Rates

It is of great public consequence that a clearer understanding should prevail concerning the taxation of large incomes. Many have an impression that income taxes in some way take money from the rich and spread it among the poor. Advocates of high surtax rates persuaded the Senate to raise the maximum from the House rate, 32 per cent, to 50 per cent, and the House to concur. As a class the supposed beneficiaries of this provision are its victims. The 50 per cent surtax little if any affects the incomes of the rich, who can invest their surplus in tax-exempt securities; but it takes away the whole income of the poor man who loses his job when the rich man's income is diverted from enterprises which otherwise would give the poor man work. What railroads pay for capital is increased and the supply diminished. Hence the public pays higher rates and yet suffers from famine in a prime necessity—transportation facilities. Directly affected is the farmer, whose dependence on transportation is special and the demand and price for whose goods are largely contingent upon the prosperity of the very industrial enterprises whose payrolls, with their buying power, are restricted through the surtax. At the earliest moment Congress should reduce the income surtax rates.

Election of Officers

Officers were elected as follows:

By the general executive committee, Alba B. Johnson as national councillor in the Chamber of Commerce of the United States.

The association in annual meeting re-elected the following: Alba B. Johnson, president, and W. W. Salmon, W. W. Willits, Knox Taylor, W. H. Woodin, S. G. Allen, Stephen C. Mason and Charles J. Symington, vice-presidents. P. Harvey Middleton was elected treasurer and will also serve as assistant secretary.

General News Department

The Central of Georgia reports that for the 12 months of the last calendar year 98.7 per cent of its passenger trains maintained schedule time.

The New York, New Haven & Hartford reports the total number of passenger trains run in 1921 as 505,853, of which 91.1 per cent, were on time.

The Great Northern ore dock No. 2 at Allouez, a suburb of Superior, Wis., was practically destroyed by fire on January 30, with a loss which may reach $2,000,000.

The American Society for Steel Treating will hold a sectional meeting Friday, March 3, at the Engineering Societies' building, New York City.

The Western Maryland has let to W. K. Hosier the contract for the operation of its repair shops at Elkins, Va. About 100 men have been employed at these shops.

The American Wood Preservers' Association in the closing session of its annual convention which was held in Chicago on January 24, 25 and 26, voted to hold the next meeting in New Orleans, La., on January 23, 1923.

The engineman and fireman of an eastbound passenger train on the Baltimore & Ohio were killed and several passengers injured in a head-on collision with a westbound freight train near Noble, Illinois, on February 1.

A Fire at Willis avenue and 132d street, New York City, on January 28, destroyed the brick office building of the New York, New Haven & Hartford Railroad at that point. This building was four stories in height and 200 feet long.

The presidents of the Eastern railroads, at a conference in New York City, on January 31, decided to appoint a committee of general managers to canvass the 52 principal roads east of the Mississippi river and north of the Ohio to determine the sentiments of the roads in regard to complying with the suggestion of the Secretary of Commerce for regional conferences with the leaders of the employing brotherhoods.

Inspectors of Locomotives are wanted by the Interstate Commerce Commission, salary $3,000 a year. The United States Civil Service Commission announces that applicants will be examined on March 8 and 9 at the usual places throughout the country. Inspectors of safety appliances and inspectors of hours of service are also wanted, at the same salary, and examinations may be taken on March 22 and 23.

The Pennsylvania Railroad, looking for revenue from all practicable sources, offers to sell advertising space in some of its passenger cars and ferry boats; the coaches operated in electric service out of Broad Street Station and between Camden and Atlantic City, and the ferry-boats operated between Philadelphia and Camden and Jersey City and New York. Of the cars involved, 111 run between Philadelphia and Paoli, Germantown and Chestnut Hill, and 94 between Camden and Atlantic City. There are ten ferry-boats running between Philadelphia and Camden, and eight between New York and Jersey City.

Erie Contracts for Handling Freight

The Erie has contracted with the Consolidated Freight Handling Company, Youngstown, Ohio, to handle the road's less-than-carload freight through its freight houses at Cleveland, Akron, Youngstown, Warren, Barberton, Ashland and Mansfield in Ohio, Corry, Sharon and Meadville, in Pennsylvania, and Jamestown, N. Y. Under the terms of the contract, the freight handling company becomes the lessee of the freight houses and adjacent property required for such work.

Automatic Substations on Electric Line

The Oregon Electric Railway has placed a large order for automatic railway substation equipment with the General Electric Company. Manual operation will be changed to automatic in seven substations and with the exception of one station in the City of Portland, automatic substations will supply all of the power required for the 180 miles of track on this road. Power is supplied to the overhead wire at 1,200 volts.

More Common Officers and Directors Authorized

The Interstate Commerce Commission has issued an order authorizing common officers and directors among companies comprising the Erie system. L. F. Loree has been authorized to retain his offices and directorates in the Delaware & Hudson and subsidiaries, the Kansas City Southern, Seaboard Air Line, Wheeling & Lake Erie, and other companies, and to remain either as director and member of the executive committee of the Baltimore & Ohio or the Erie or the Pere Marquette.

Directors Moore and Stotesbury

The Interstate Commerce Commission has denied the application of William H. Moore for authority to retain the positions of director of the Lehigh Valley and of the Delaware, Lackawanna & Western. E. T. Stotesbury has been authorized by the commission to hold until further order the position of director of the Lehigh & Hudson River and either the position of director of the Lehigh Valley and certain named subsidiaries or positions with carriers of the Reading System including chairman of board of directors of the Philadelphia & Reading, and director of various subsidiaries. He is given 30 days in which to make his election as to which positions he will hold.

Southern Pacific Erecting Large Commissary Building

The Southern Pacific has under construction at West Oakland, Cal., what is probably the largest commissary department plant in existence. This establishment will include laundry facilities for the handling of one million pieces of linen a month, a butcher shop with cooling and chill room and a bake shop. About 250,000 meals are served each month by the different branches of the service under the Southern Pacific Commissary Department's jurisdiction. Waiters are schooled at the plant in their duties, examinations are held once a month and the successful applicants are given graduate waiters certificates. Monthly examinations are also held for chefs applying for certificates of a similar character as well as for cooks seeking promotions to the position of chef.

Progress in Engineering Standardization

Beginning with 1922, the Engineering Division of the American Railway Association became a member body of the American Engineering Standards Committee. E. A. Frink, of the Seaboard Air Line, who is chairman of the standardization committee of the division, represents the division upon the American Engineering Standards Committee.

Arrangements have just been completed by this organization whereby co-operation with the standardizing bodies in other countries will be made more effective. In order that all standards will be available to the industries of the various countries, each national body will sell the approved standards of the other bodies. The American Engineering Standards Committee, 29 West Thirty-ninth street, New York City, has available the publications of the standardizing bodies in Austria, Belgium, Canada, France, Germany, Great Britain, Holland, Sweden and Switzerland. Copies of the standards may be obtained at a nominal cost, or the copies on file may be consulted at the offices of the committee.

Tie Producers Meet in Chicago

The National Association of Railroad Tie Producers held its fourth annual meeting at the Hotel Sherman, Chicago, on January 26 and 27. Tie producers were present from all parts of the country. Consideration was given to the present purchasing policy of the railways and to other problems affecting the production of cross ties. The following officers were elected for the ensuing year. President, J. H. Johnson, B. Johnson & Son, Richmond, Ind.; first vice-president, Timmons Harmount, Harmount Tie & Lumber Company, Chillicothe, Ohio; second vice-president, H. M. Cochran, Union Lumber Company, San Francisco, Cal.; secretary, Warren Nixon, Western Tie & Timber Company, St. Louis, Mo., and treasurer, R. E. McKee, Long Bell Lumber Company, Kansas City, Mo.

Southern Pacific Stock for Employees

Employees of the Southern Pacific System, beginning on February 1, will be given the opportunity to buy shares of the capital stock of the company, at the market rate, without payment of commissions. The plan provides that, on application by the employee, the company will buy the stock in the open market, deducting the purchase cost from his monthly pay, at the rate of $5 a month for each share. An employee may buy from 1 to 15 shares of stock, according to his ability to pay for it. It is also provided that, having completed a specified purchase, the employee may buy additional shares but at no time is he to be paying for more than 15 shares at one time. Failure to pay three successive installments will terminate the employee's rights to complete the purchase. The company will charge the employee 6 per cent interest on the cost of the stock bought for his account and will credit him with dividends paid on the stock held for him. With the stock selling at 81½ and dividends at six per cent, the employee makes a profit on the money advanced to him.

Expenditures for Valuations—$75,000,000

In a bulletin issued by the Presidents' Conference Committee on Federal Valuation under date of January 20, the statement is made that a total of $11,480,923 was expended for valuation work by Class I carriers reporting to the Presidents' Conference Committee, during the year ending June 30, 1921, making the total reported expended by these carriers for the eight years ending June 30, 1921 (with a few omissions) $54,120,957. The expenditures of the Government's Bureau of Valuation for the year ending June 30, 1921, were $2,728,656, while the total expenditures by the Bureau from the beginning of the valuation work to June 30, 1921, as reported in the annual reports of the Interstate Commerce Commission to Congress have been $21,462,809. In this same statement there is quoted testimony, presented before a sub-committee of the House Committee on Appropriations by T. P. Artaud, executive assistant of the Bureau of Valuation, to the effect that the number of employees in the Division of Valuation has been reduced from 1,016 in December, 1920, to 553 in December, 1921.

Live Stock Claim Prevention

At a live stock loss and damage reduction conference held recently in Chicago, the freight claim division of the American Railway Association presented facts and figures showing what the railroads are doing to prevent loss and damage to live stock shipments. For the eight months ending August 31, 1921, the railroads expended $2,567,309 for loss and damage of this character. Of this amount $1,021,172 was the direct result of delay; $903,718 was entered as damage; $199,147 as unlocated loss; $161,610 as resulting from train wrecks; $91,425 loss due to errors of employees; $54,030 from defective or unfit equipment; $42,562 improper handling, loading and unloading; $12,076 robbery and $3,837 fire loss.

The record of live stock loss and damage expenditures during recent years shows that the situation has been improved materially and this is confirmed both from the records of the various stock yards and of bureaus handling different phases of live stock damage matters. The Hartford Live Stock Insurance Company finds its present claims the lowest in the history of the company. Reporting for 11 western markets, the Western Weighing & Inspection Bureau has prepared statistics showing that for the month of October, 1921, there was but one dead animal to each 4,734 stock shipped, as compared to one in 3,600 recorded for the same month in 1920.

Director General Proposes Modification of Equipment Trust Agreement

The director general has addressed a letter to all railroads of which the United States Treasury still holds issues of equipment trust obligations, no part of which has yet been sold, requesting modifications of the subordination terms of the trust agreement. Under the original terms the director general was authorized to subordinate only the last five maturities; namely, 1931 to 1935, inclusive, or any one or more of these maturities. Under the proposed amendment, the director general may subordinate such portion of the maturities of any year as he may determine.

The amended clause will read as follows:

"Eleventh: Upon request of the holder, or holders, of all the notes which by their terms shall be due and payable in any year, and upon presentation of such notes for that purpose the trustee shall stamp thereon, or upon such part thereof as said holder, or holders, may designate and request the following words:

"For value received and as an inducement to purchases of unstamped notes, the holder of this note has caused the same to be stamped pursuant to Article Eleventh of the Equipment Trust Agreement mentioned in the note and, as provided in said Article Eleventh, the unstamped notes shall be payable in preference and priority to the stamped notes out of any moneys received or collected by the trustee under said Equipment Trust Agreement upon enforcement of its rights or remedies in case of a default of the carrier."

For the present, it is the purpose of the director general, upon the execution of the supplemental agreements making the amended clause operative, to make sale of railroad equipment trust obligations under an arrangement to subordinate, on the part of the government, approximately 33⅓ per cent of the principal amount of each maturity; and the director general will be prepared to sell 66⅔ per cent of issues of equipment trust obligations, unsubordinated, at par and accrued interest to date of delivery. The Railroad Administration thus will retain the one-third subordinated part of all serial maturities.

Meetings and Conventions

The following list gives names of secretaries, dates of next or regular meetings and places of meetings:

AIR BRAKE ASSOCIATION.—F. M. Nellis, 165 Broadway, New York City. Next meeting, May 9-12, 1922, Hotel Washington, Washington, D. C. Exhibit by Air Brake Appliance Association.

AIR BRAKE APPLIANCE ASSOCIATION.—J. F. Gettrust, The Ashton Valve Company, 318 W. Washington St., Chicago. Meeting with Air Brake Association.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, Supervisor of Demurrage and Storage, C. & N. W. Ry., Chicago.

AMERICAN ASSOCIATION OF DINING CAR SUPERINTENDENTS.—L. A. Stone, C. & E. I. Ry., Chicago.

AMERICAN ASSOCIATION OF ENGINEERS.—C. E. Drayer, 63 E. Adams St., Chicago.

AMERICAN ASSOCIATION OF GENERAL BAGGAGE AGENTS.—E. L. Duncan, 332 So. Michigan Ave., Chicago. Next meeting, June 28 and 29, Minneapolis, Minn.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, August 23-25, 1922, Kansas City, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, General Secretary, 75 Church St., New York, N. Y. Annual meeting, November, 1922.

Division I—Operating.

Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill.

Medical and Surgical Section. J. C. Caviston, 75 Church St., New York.

Protective Section (including former activities of the American

Railway Chief Special Agents and Chiefs of Police Association), J. C. Caviston, 75 Church St., New York, N. Y.

Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents). W. A. Fairbanks, 75 Church St., New York, N. Y. Next meeting, March 21-23, Richmond, Va. Annual meeting, September 20-22, 1922, Colorado Springs, Colo.

Safety Section. J. C. Caviston, 75 Church St., New York.

Division II—Transportation (including former activities of the Association of Transportation and Car Accounting Officers). G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next convention, March 14-16, Chicago. Exhibit of National Railway Appliances Association, March 13-16.

Construction and Maintenance Section. E. H. Fritch.

Electrical Section. E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association) H. S. Balliet, 75 Church St., New York, N. Y. Next meeting, March 13 and 14, Drake Hotel Chicago Annual meeting, June 14-16, 1922, Monmouth Hotel, Spring Lake, N. J.

Division V—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual convention, June 14-21, 1922, Atlantic City, N. J. Exhibit by Railway Supply Manufacturers' Association.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association). V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI—Purchases and Stores (including former activities of the Railway Storekeepers' Association). J. P. Murphy, General Store Keeper, New York Central, Collinwood, Ohio.

Division VII—Freight Claims (including former activities of the Freight Claim Association). Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 17-19, 1922, Cincinnati, Ohio. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—J. F. Jackson, Central of Georgia, Savannah, Ga. Annual meeting, May 10-12, 1922, Denver, Colo.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Next convention, March 14-16, Chicago. Exhibit by National Railway Appliances Association, March 13-16.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division 5.)

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eiseman, 4600 Prospect Ave., Cleveland, Ohio. Annual convention, September 25-30, 1922, Detroit, Mich.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, University of Pennsylvania, Philadelphia, Pa. Annual meeting, June 26, 1922, Chalfonte Hotel, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—E. M. Chandler (acting secretary), 33 W. 39th St., New York. Regular meetings 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

Railroad Division, A. F. Stuebing, Managing Editor, Railway Mechanical Engineer, Woolworth Bldg., New York. Next meeting, May 16, 1922, 29 W. 39th St., New York.

AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, Northern Pacific Ry., Spokane, Wash.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—George M. Hunt, Chemist, Forest Products Laboratory, Madison, Wis.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific R. R., St. Paul, Minn. Next meeting, May 17-19, 1922, Montreal.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Thomas De Witt Cuyler (chairman), 61 Broadway, New York, N. Y.

ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—D. J. Higgins, American Valve & Meter Company, 332 S. Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—W. A. Booth, 53 Rushbrooke St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, New Morrison Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—Thomas B. Koeneke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 2d Thursday in January, March, May, September and November, Hotel Iroquois, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. P. Elliott, Terminal Railroad Association of St. Louis, East St. Louis, Ill.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, 34th St. and Artesan Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.

EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C. Annual meeting May 11, 1922, Railroad Club of New York.

FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday preceding 3d Friday in month, Room 1414, Manhattan Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Next annual meeting, May 22-25, 1922, Auditorium Hotel, Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabasha Ave., Winona, Minn.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.

MAINTENANCE OF WAY MASTER PAINTERS' ASSOCIATION.—E. E. Martin, Union Pacific R. R. Room No. 19, Union Pacific Bldg., Kansas City, Mo. Annual convention, 1922, Buffalo, N. Y.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York. Next convention, May 23-26, 1922, Hotel Sherman, Chicago.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)

MASTER CAR BUILDERS' ASSOCIATION.—(See A. R. A., Division V.)

NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—Warren C. Nixon, Western Tie & Timber Co., 905 Syndicate Trust Bldg., St. Louis, Mo.

NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, September 26, 1922, Detroit, Mich.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York. Next convention, May 10-12, Philadelphia, Pa.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition, March 13-16, Coliseum, Chicago, at convention of American Railway Engineering Association.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York.

PACIFIC RAILWAY CLUB.—W. S. Wollner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Annual meeting, June 14, 1922, Cleveland, Ohio.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut Sts., Philadelphia, Pa. Annual dinner, February 1, Waldorf-Astoria, New York.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Pitt Hotel, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—R. J. Himmelright, 17 East 42nd St., New York. Meeting with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va. Next meeting, October 10-13, 1922, Pittsburgh, Pa.

RAILWAY SIGNAL ASSOCIATION.—(See A. R. A., Division IV., Signal Section.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A., Division VI.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V.

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York.

RAILWAY TREASURY OFFICERS ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Annual convention, September 12-14, 1922, Cleveland, Ohio. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, Western Ry. of Ala., Atlanta, Ga.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, Marine Trust Building, Buffalo, N. Y. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 14 E. Jackson Boulevard, Chicago. Regular meetings, 3d Monday each month except June, July and August.

Traffic News

No passports are now required at Laredo, Tex., for United States citizens entering Mexico.

Canadian Pacific passenger traffic officers, to the number of 60, held their annual conference in New York City this week.

Production of soft coal increased 6.4 per cent during the week ended January 21, according to the weekly bulletin of the Geological Survey. The total output is estimated at 8,838,000 net tons. The bulletin says that at the present rate production probably exceeds consumption.

The fourth annual convention of the American Fruit & Vegetable Shippers' Association was held at the Hotel Sherman, Chicago, from January 25 to 28, inclusive. More than 2,000 delegates representing shippers, brokers, jobbers and receivers were in attendance.

The Passenger Ticket & Freight Agents' Association of Texas, at its annual convention at Corpus Christi, on January 22 and 23, elected the following officers: President, E. Paul Junkin, Dallas; vice-president, Elbert Blair, Fort Worth, and secretary-treasurer, L. B. Sheppard, Dallas.

Reductions ranging as high as 33⅓ per cent on many commodities moving from New York to California terminals and intermediate points, via the Southern Pacific Steamship Lines to Galveston, Tex., and thence west via the Southern Pacific, have been announced by the company and will shortly take effect. Items affected in this reduction, on a carload lot basis, are: canned goods, beverages, preserves, linoleum, green coffee, paint, dry or in oil, lead, twine, cordage and rope, bullets, loaded cartridges, etc.

The opening session of an investigation of the "Pittsburgh Plus" trade practice, which fixes the prices of steel products on the basis of a Pittsburgh (Pa.) price, plus freight to destination, no matter where the steel may be made or shipped from, began before John W. Bennett, examiner for the Federal Trade Commission at Milwaukee, Wis., on January 30. On the opening day, H. E. White, Minneapolis, Minn., rate expert for the Western Association of Rolled Steel Consumers, submitted figures showing the advantage the Pittsburgh manufacturer has over his competitors in the west. Further testimony showing the disadvantage under which the western manufacturer labors was given by H. W. Ladish, of Cudahy, Wis., president of the Ladish Drop Forge Company. The hearing is to continue at Milwaukee for several days and then will be continued at other centers of the steel industry.

N. I. T. L. for Repeal of Section 15-a

The National Industrial Traffic League, at a special meeting in Washington on January 27 adopted resolutions recommending the repeal of Section 15-a of the transportation act, which contains the percentage rule of rate-making, but favoring a clear declaration of principle in the law that the railways are entitled to fair compensation. The league also went on record as opposed to the Capper and Nicholson bills, which would also repeal or modify Section 15-a particularly for the purpose of restoring the powers of the state commissions.

Portraits on Family Tickets

Portraits on family tickets (which are good for 50 rides within one year), are now required by the New York Central, a notice to that effect having been issued at New York City last week, applying to the New York suburban district. This action follows the use of portraits on individual monthly tickets which was put into effect a few months ago. With the fifty ride tickets, which are good for the purchaser and his family and servants, only the purchaser's portrait will be required, but he must give the names of all the members of his family who will be entitled to use the ticket, and each of these other members, when he or she rides, may be called upon to write his or her name.

Labor Board Decisions

Seniority of Demoted Supervisory Officer

An assistant roadmaster on the Michigan Central was demoted to section foreman, displacing a foreman. The employees organization entered a complaint maintaining that, as an assistant roadmaster is outside the scope of the agreement, a man in that position has no seniority rights under the agreement. The decision of the board is that he is entitled to a position as section foreman by displacing the junior section foreman in point of service. *Decision No.* 594.

Employees Who Fail to Report for Work Not Entitled to Pay

Two bridge and building mechanics on the Nashville, Chattanooga & St. Louis were temporarily out of service and notices sent to them concerning a newly organized paint gang were not received. When they did hear of these positions, they applied for them but were denied employment because the quota was full. The railroad recognized their seniority and stated that they would have been accepted if they had applied for the positions in time. The board denied the claim of the two men for pay during the time that this gang was in service. *Decision No.* 603.

Train Dispatcher Can Displace an Agent-Telegrapher

A train dispatcher on the Wabash was permitted to displace an agent-telegrapher because of a reduction in train dispatching forces. An agreement between the employees and the carrier provides that employees assigned to official positions with the company shall retain their seniority so long as they remain in such official positions. The employees contended that these rules do not permit such officers who return to telegraph service to displace regularly assigned employees in that service. The carrier contended that its action was proper and in accordance with the agreement. The Labor Board sustained the position of the carrier.—*Decision No.* 620.

A similar dispute between the Order of Railroad Telegraphers and the New York Central regarding train dispatchers displacing employees in telegraph service when the positions of train dispatchers were abolished, was decided in favor of the carrier by the Labor Board.—*Decision No.* 619.

Carriers Sustained in Applying 10 Cents an Hour Decrease in Baggage Department

On April 1, 1920, the various classes of employees in the baggage room of the Union Station at St. Louis, Mo., received a uniform increase in pay of 17 cents an hour. Article 2 of Decision No. 2 of the Board provided for smaller increases for various classes of work, to be added to the rates established by or under the authority of the United States Railroad Administration, but the carrier allowed the 17-cent increase to stand, in consideration of the agreement made at the time when that increase became effective. After the passage of Section 4 of Addendum No. 1 of Decision No. 147, which authorized graduated decreases, the employees contended that this Addendum should be applied exactly as it read; that is 10 cents an hour for baggage and parcel room employees, 6 cents for foremen and sub-foremen, 6 cents for clerks with two or more years' experience, and 13 cents for clerks with experience of 1 year in railroad clerical work. The carrier contended that, as the employees were treated as one class in increasing their wages, to segregate them into different classes and apply the decrease authorized by Decision No. 147, would create differentials which had not heretofore existed; that they should be considered as one class in applying the decrease and that the 10 cents per hour was the proper decrease to be applied, which position was sustained by the Board.—*Decision No.* 621.

Foreign Railway News

Rail Strike in Germany

In spite of a presidential decree forbidding under heavy penalties any such action, a strike was declared on the railways of Germany beginning at midnight, February 1. Enginemen, trainmen and station masters are the employees affected, although other workers may join them. It is expected that the government will fight the strike with all its resources.

Financial Details of L. & N. W.— L. & Y. Amalgamation

The following details of the merger of the Lancashire & Yorkshire with the London & North Western, previously mentioned in these columns, will convey in general the financial arrangements agreed to.

1. Holders of L. & Y. 3 per cent debenture stock will receive in exchange a like amount of London & North Western 3 per cent debenture stock.

2. Holders of L. & Y. 6 per cent minimum preference stock will for each £100 of such stock receive £150 L. & N. W. 4 per cent guaranteed stock (which, of course, will yield the same income). Since in the L. & Y. these stockholders were entitled to share pro rata with common stockholders all dividends over 6 per cent, a further £6 5s is added, allowing the holders of L. & Y. 6 per cent minimum preference stock a total of £156 5s of L. & N. W. 4 per cent guaranteed stock for each £100 of the former holding.

3. Holders of L. & Y. 4½ per cent minimum preference stock will receive £125 of L. & N. W. 4 per cent guaranteed stock for each £100 of the former, i. e., a yield of 5 per cent (the £25 in compensation for lower rate of dividend and relinquishing of rights to share with common stockholders all dividends over 4½ per cent).

4. Holders of L. & Y. 4 per cent guaranteed stock will receive a like amount of the same L. & N. W. stock.

5. Holders of L. & Y. 3 per cent preference stock will receive for each £100 thereof £75 of similar 4 per cent stock of the L. & N. W. (same dividend yield).

6. Holders of 5 per cent redeemable preference stock (redeemable June 30, 1926) of the L. & Y. will receive similar stock of the L. & N. W.

7. Holders of each £100 of L. & Y. ordinary shares will receive £73 of L. & N. W. ordinary stock.

8. Heretofore L. & N. W. preference shareholders had the voting power only in cases affecting their interests, while L. & Y. preference shareholders had full voting powers. Hereafter all preference shareholders will vote on all questions the same as the holders of ordinary shares.

The chairman of the London & North Western at the meeting of the L. & N. W. stockholders where the plan was announced, said in part:

"We took the earning capacity of the separate undertakings as the fair and only reasonable basis for amalgamation, and this basis has been adopted in the recent Railways Act as a direction to the Amalgamation Tribunal in assessing the value of the respective undertakings. We took the year 1913, which was the last complete year under normal conditions, when the North Western paid 7 per cent on its ordinary stock and the Lancashire & Yorkshire paid 4½ per cent and assessed the earning value of the two companies on that basis. We, however, as the company making the offer, added a small advantage to the holders of Lancashire & Yorkshire ordinary stock, which both companies considered only fair and reasonable. To sum up the position it is this: The boards of the two companies are mutually satisfied that the proposed amalgamation will be to the advantage of their respective stockholders. The London & North Western, as the larger of the companies, is practically absorbing the other, and as we were the wooing party, we have thought it well to deal perhaps somewhat generously on an income basis with the other party concerned."

Equipment and Supplies

Locomotives

WINSTON & Co., Kingston, N. Y., has ordered 1 Prairie type locomotive from the American Locomotive Company. This locomotive will have 16 by 24 in. cylinders and a total weight in working order of 107,000 lb.

THE STEWART JONES COMPANY, Rock Hill, S. C., has ordered 1 four-wheel type tank locomotive from the American Locomotive Company. This locomotive will have 14 by 28 in. cylinders and a total weight in working order of 79,000 lb.

The UNIVERSAL PORTLAND CEMENT COMPANY, Chicago, has ordered 1 six-wheel switching locomotive from the American Locomotive Company. This locomotive will have 20 by 26 in. cylinders and a total weight in working order of 142,000 lb.

TEXAS GULF SULPHUR COMPANY, 47 East Forty-second street, New York City, has ordered 1 Consolidation type locomotive from the American Locomotive Company. This locomotive will have 21 by 28 in. cylinders, a total weight in working order of 163,000 lb. and will be equipped with a superheater.

NEW YORK, ONTARIO & WESTERN, reported in the *Railway Age* of December 3, as inquiring for from 3 to 6 locomotives, has ordered 4 Mountain type locomotives from the American Locomotive Company. These locomotives will have 27 by 28 in. cylinders, a total weight in working order of 317,000 lb. and will be equipped with superheaters.

Freight Cars

THE NORFOLK & WESTERN is inquiring for prices on a number of freight cars including 1000 gondola cars and 1000 hopper cars of 120 tons capacity.

THE CHICAGO, BURLINGTON & QUINCY is expected to place contracts the latter part of the week for a part of the 7,300 freight cars it has on inquiry.

THE EASTMAN CHEMICAL CORPORATION, New York City, has ordered from the General American Tank Car Corporation 1 tank car with a capacity of 6,000 gal.

Iron and Steel

THE MINNEAPOLIS & ST. LOUIS has ordered 3,000 tons of rail from the Illinois Steel Company.

THE CHICAGO UNION STATION COMPANY, which was noted in the *Railway Age* of January 21 as inquiring for structural steel, has placed an order for 17,000 tons with the American Bridge Company.

THE ILLINOIS CENTRAL has ordered 30,000 tons of 90 lb. rail, distributed as follows: 14,000 tons from the Tennessee Coal & Iron Company, 11,000 tons from the Illinois Steel Company, and 5,000 tons from the Inland Steel Company.

Machinery and Tools

THE VIRGINIAN RAILWAY is inquiring for prices on 1 American ditching machine.

The NEW YORK CENTRAL has ordered 1 40-ton gantry crane from the Niles-Bement-Pond Company, New York City.

The DELAWARE, LACKAWANNA & WESTERN has ordered 1 42-in. frog switch planer from the Niles-Bement-Pond Company and has also bought recently some tools including engine lathes, radial drills, a boring turning mill, wheel press, horizontal borer and a slotter.

Supply Trade News

Griffen S. Ackley, formerly from 1903 to 1909, president of the National Brake Company, Buffalo, N. Y., died in Brooklyn, N. Y., on January 23. Mr. Ackley sold his interests in the above company in 1909 and formed the Ackley Brake & Supply Corporation, with headquarters in New York City.

A. R. Hance has been appointed northwestern sales manager of the **Bucyrus Company,** South Milwaukee, Wis., with headquarters at 608 Pittock Block, Portland, Ore., succeeding **L. T. Russell,** who has resigned. Mr. Hance has been connected with the sales department of the company in the Central and Eastern territories for the past six years.

C. R. Naylor, of the western sales office of the **T. H. Symington Company,** at Chicago, has been appointed manager of sales of the **Forged Steel Yoke Corporation,** with headquarters in the Peoples Gas building, Chicago, effective February 1. The output of the Forged Steel Yoke Corporation will be sold and distributed by The T. H. Symington Company, which still retains Mr. Naylor's services.

A. W. Brown has been appointed assistant to the vice-president of the western district of the **T. H. Symington Company,** New York City, effective February 1, Mr. Brown will make his headquarters in the Peoples Gas building, Chicago. He was born on February 6, 1881, in New York City, and was educated at Trinity College of New York and Andover Academy, of Mass. Mr. Brown was connected with the Griffin Wheel Company from 1913 to 1919 and was then appointed manager of railway sales of the Air Reduction Sales Company, New York City, which position he now leaves to take up his new duties with the T. H. Symington Company.

A. W. Brown

The **Electric Storage Battery Co.,** Philadelphia, Pa., announces the consolidation of its various offices in New York City. That part of the sales force formerly located at the Exide factory branch, Sixty-fourth street and West End avenue, has been moved to the New York branch office at 23-31 West Forty-third street, which will hereafter be the headquarters also of the export sales department. Under the new arrangement, **F. L. Kellogg,** manager of the North Atlantic district embracing the New York, Boston and Rochester branch territories, **F. F. Sampson,** New York branch manager and **J. F. Kelly, Jr.,** export sales manager will be located at West Forty-third street offices. The change was effective February 1.

The Doullut & Williams, Inc., the Southern Lighterage & Wrecking Company, Inc., and the Shell Beach Land & Improvement Company, Inc., have been consolidated under the name of the **Doullut & Williams Company, Inc.,** New Orleans, La. The new company has a capital of $1,000,000 and it will continue to carry on the different operations previously handled by the above-named companies. In addition to specializing in the design and construction of docks, wharves and industrial plants its operations include the undertaking and handling of various kinds of construction with a department for each class of work, under the management of a competent engineer of practical experience in the class of work handled by his department.

The **Northern Refrigerator Car Company** has been organized at Milwaukee, Wis., to operate 500, 40 ft. steel underframe refrigerator cars that are now being constructed by the Haskell & Barker Car Company, in addition to all of the cars heretofore operated by the Cudahy-Milwaukee Refrigerator Line, and the Peacock Refrigerator Line. The incorporators of the company are Michael F. Cudahy, C. P. J. Kroeck and Charles O'Hara, the latter serving as president of the company.

Ogle Construction Company

Carl F. Bledsoe, secretary of the **Ogle Construction Company,** Chicago, has been elected president succeeding Robert A. Ogle, deceased. **M. W. Powell,** vice-president, has been elected vice-president and secretary, and **J. G. Forster,** vice-president, has been elected vice-president and treasurer.

Carl F. Bledsoe was born in Texas in 1881, and after completing a collegiate course, enrolled as a student of the International Correspondence School, completing the course in civil engineering. He entered business with the Gurley Engineering Company at St. Louis, Mo., in 1904, as a draftsman and structural engineer. From 1906 to 1911, he was with the Otto Gas Engine Works, at Chicago, as a structural engineer in their railway construction department. During the latter year, he assisted in the organization of the Ogle Construction Company from which time he has served the company as secretary, in addition to supervising the engineering and construction policies of the company.

M. W. Powell, who has been elected vice-president and secretary, succeeding Mr. Bledsoe, as secretary, was born in Georgia, and is a graduate of the mechanical engineering department of the Kentucky State University, class of 1905. He entered business in the engineering department of the Chicago & Alton, in 1905, and during the next two years was employed by that company. During the latter year, he became office engineer with the Chicago, Indiana & Southern. From 1909 to 1913, he was designing engineer of locomotive fuel and water stations, for the Otto Gas Engine Works and the T. W. Snow Construction Company. In 1913, he became vice-president of the Ogle Construction Company in charge of engineering, which office he will continue to occupy in addition to his duties as secretary.

J. G. Forster, vice-president in charge of sales, who in addition has now taken over the duties of treasurer, was born in Baltimore, Md., in 1893. After graduating from the Baltimore Polytechnic Institute, he superintended the construction of the bulk sales distributing stations for an oil jobbing company at Baltimore, until 1917. During the war he served as officer in charge of fuel and forage, under the depot quartermaster at Atlanta, Ga. Upon his discharge in 1919, he became associated with the Ogle Construction Company.

Obituary

C. M. Woodruff, formerly railroad sales manager of the B. F. Goodrich Rubber Company, Akron, Ohio, was struck by an automobile truck on January 25, and died shortly afterward in the Akron City Hospital. At the time of his death Mr. Woodruff was 45 years of age and was business manager of the Akron Board of Education. Mr. Woodruff was a native of Ashtabula county, Ohio. He worked his way through Oberlin College, graduating in 1901, and then went to Akron and started as a trucker in the plant of the B. F. Goodrich Company in order to learn the business from the bottom up, from which position he was promoted to night foreman of the air brake hose department. From there he was taken into the railroad sales department as traveling representative. For a period of seven years he covered all the railroads in the South and Middle West, later being made railroad sales manager. He was elected a member of the Akron school board in 1917, and a year and a half later, after a service of 18 years with the Goodrich Company he accepted an appointment as business manager of the school board.

Railway Construction

CHICAGO, BURLINGTON & QUINCY.—This company, which was noted in the *Railway Age* of December 17 (page 1252), as contemplating the construction of a new passenger station at Aurora, Ill., has applied to the Illinois Commerce Commission for authority to proceed with this work.

CHICAGO GREAT WESTERN.—This company is accepting bids for the repair of its grain elevators at Omaha, Neb.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has awarded a contract to the Miller Heating Company, Chicago, for the installation of a boiler washing system in its roundhouse at Chickasha, Okla., estimated to cost approximately $30,000. A water treating plant will also soon be installed in connection with the above.

CHICAGO, ROCK ISLAND & PACIFIC.—This company has awarded a contract to the Railroad Water & Coal Handling Company, Chicago, for the construction of a frame coaling station at Booneville, Ark., the cost of which is estimated at $20,000.

CHICAGO UNION STATION.—This company will soon receive bids for the wrecking of the old baggage building on Canal street between Jackson and Adams streets. Following the wrecking of this building the concourse of the new union station will be constructed at that point.

GULF, COLORADO & SANTA FE.—This company, which was noted in the *Railway Age* of December 31 (page 1332), as contemplating the construction of a two-story freight station at Brenham, Tex., is now receiving bids for the building of this station. The work involved will include a two-story office building, 32 ft. by 36 ft., a warehouse, 32 ft. by 74 ft.; and a concrete platform 32 ft. by 128 ft. The building will be of brick construction, with concrete floors and a tar and gravel roof. The entire cost has been estimated at $33,890.

ILLINOIS CENTRAL.—This company will construct a third track from Matteson, Ill., to North Junction, a distance of about 10 miles, and from Tucker to Kankakee, a distance of approximately 5 miles.

LOS ANGELES & SALT LAKE.—This company has awarded a contract to the Lynch-Cannon Company, Salt Lake City, Utah, for the construction of a two-story office building, 80 ft. by 200 ft., and a one-story freight station, 50 ft. by 600 ft. at Los Angeles, Cal. The structures will be of reinforced concrete and brick construction, the entire cost of which is estimated at $210,050.

LOUISVILLE & NASHVILLE.—This company closed bids on January 30, for the construction of a Y. M. C. A. building at Hazard, Ky. The same company contemplates the construction of a packing and shipping shed at Biloxi, Miss.

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE.—This company, in conjunction with the Chicago & Northwestern and the city of Ironwood, Mich., will receive bids until March 1 for the construction of a reinforced concrete viaduct, 1,500 ft. in length, over 23 tracks at Mansfield street, Ironwood, to cost $220,000.

MISSOURI, KANSAS & TEXAS.—This company will construct a brick and stucco passenger station at Highland Park (Dallas), Tex., estimated to cost $17,000.

MISSOURI PACIFIC. This company, which was noted in the *Railway Age* of January 21 as accepting bids for a reinforced concrete and stucco passenger station at Earle, Ark., has awarded the contract for this work to H. O. Hirsch & Company, St. Louis, Mo.

NATIONAL RAILWAYS OF MEXICO.—This company has awarded a contract to Dudley & Orr, El Paso, Tex., for the grading and the placing of corrugated iron culverts for 47 miles of railroad, extending from Lucero, Mex., to the property of the Erupcion Mining Company.

Railway Financial News

ATLANTA, BIRMINGHAM & ATLANTIC.—*Asks Government Loan.*—This company has applied to the Interstate Commerce Commission for a loan of $615,592 for 15 wears to pay back taxes due for 1921 in Alabama and Georgia and a short term loan.

BALTIMORE & OHIO.—*Authorized to Abandon Branches.*—The Interstate Commerce Commission has issued certificates authorizing the abandonment of the Pigeon Run Branch in Starks County, Ohio, 5.62 miles, and 2.76 miles of its Magnolia branch.

BOSTON & MAINE.—*Asks Government Loan.*—An application has been filed with the Interstate Commerce Commission for a loan of $5,000,000 for 13 years for the purpose of refunding a loan to the company made last year from the revolving fund.

BUFFALO, ROCHESTER & PITTSBURGH.—*Six Months Guaranty Determined.*—The Interstate Commerce Commission has issued a certificate stating that it has finally determined the amount of the guaranty to this company for the six months period of 1920, amounting to $1,693,771, of which $161,271 is still due.

CENTRAL OF NEW JERSEY.—*Directors Resign.*—George F. Baker and Robert W. de Forest have resigned from the board of directors. The offices of chairman of the board, vice-president and general counsel and assistant to the president have been discontinued.

CHICAGO & ALTON.—*New Directors.*—Charles Hayden, chairman of the Chicago, Rock Island & Pacific, and Marcus L. Bell, vice-president and general counsel, have been elected to the board and executive committee of the Chicago & Alton. They succeed J. S. Mackie, who resigned because of ill health, and Roberts Walker, who withdrew because his duties in the bondholders' committee had ended.

CHICAGO & WESTERN INDIANA.—*Authorized to Issue Bonds.*—The Interstate Commerce Commission has authorized an issue of $223,000 of consolidated mortgage gold bonds to be delivered to the applicants' tenants in repayment of sinking fund advances.

CHICAGO, BURLINGTON & QUINCY.—*Bond Issue.*—J. P. Morgan & Co., the First National Bank and the National City Company are offering the new issue of $30,000,000 first and refunding mortgage 5 per cent bonds, due 1971, at 97, at which price the bonds yield approximately 5.17 per cent. The Interstate Commerce Commission amended its original order of January 17 fixing the price of these bonds at not less than 89½ per cent to provide that they should be sold at not less than 92½ per cent of par and accrued interest so that the total cost to the applicant would not exceed 5½ per cent. The bonds are issued under a new mortgage and cover by direct or collateral lien about 9,000 miles of road.

According to preliminary figures furnished the bankers by Hale Holden, president of the Chicago, Burlington & Quincy, the net income of the road for 1921, after deducting rentals and miscellaneous charges, was slightly over $31,000,000, against interest charges on the company's funded debt of $6,800,000. For the past ten years the Burlington has reported net income, after deducting rentals and miscellaneous charges, which has averaged more than four times the company's annual interest charges on the funded debt. With the exception of equipment trust certificates taken by the Railroad Administration, the Burlington has sold no bonds during the past seven years, and its funded debt today is nearly $9,500,000 less than in 1909, with the result that its current interest charges are materially lower than those of ten years ago. Since 1901 the Burlington's surplus income and miscellaneous profits after charges have amounted to approximately $406,000,000, of which $228,000,000 has been paid out in cash dividends and about $178,000,000 has been added to surplus. The bonds now being offered are not redeemable for twenty years, after which date the company has the option of retiring the issue as a whole at prices ranging from 107½ in 1942 to 103 for the last ten-year period prior to maturity.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Loan to War Finance Corporation Repaid.*—The War Finance Corporation has announced that its advance of $1,400,000 to this company made on March 14, 1919, has been repaid in full. The railroad company has been authorized by the commission to procure the authentication and delivery to its treasurer of $955,000 of first and general

mortgage 6 per cent gold bonds to be pledged from time to time as security for short term notes.

CHICAGO, ROCK ISLAND & PACIFIC.—*Authorized to Issue Bonds.*—The Interstate Commerce Commission has authorized an issue of $1,000,000 of general mortgage gold bonds to be used as collateral security from time to time for short term notes.

CHICAGO, ROCK ISLAND & PACIFIC.—*Director Resigns.*—John G. Shedd has resigned as a director in compliance with the Interstate Commerce Commission's ruling on interlocking directorates, and Carl Nyquist, vice-president, secretary and treasurer of the company, has been elected to succeed him.

Retirement of Notes.—The $4,500,000 6 per cent collateral trust notes due February 1, 1922, were met by cash payment from the company's treasury.

COLORADO, WYOMING & EASTERN.—*Receiver.*—President F. B. Miller has been appointed receiver with headquarters at Laramie, Wyo. See *Railway Age*, November 19, 1921, page 1016.

DENVER & RIO GRANDE.—*Reorganization Plan.*—The reorganization plan, dated January 27, 1922, provides for the cancellation of the present first and refunding mortgage, the creation of two new mortgages, an exchange of the present first and refunding mortgage bonds for 50 per cent of the junior issue of the two new mortgage bond issues and 50 per cent in new cumulative preferred stock, and the provision of $10,000,000 cash by the Western Pacific Corporation in exchange for new common stock of no par value.

An outline of the plan, as approved and adopted by the committee representing the holders of first and refunding mortgage five per cent bonds, follows:

During the past year at a judgment sale, the Western Pacific Railroad purchased the property of the Denver & Rio Grande Railroad Company through a new company, under the name of Denver & Rio Grande Western and with the approval of the Interstate Commerce Commission became the owner of the entire capital stock of the new company. This amounted to 300,000 shares of no par value. The new company acquired the property subject to the bonds of the old company, but did not assume their payment.

The Western Pacific is now making an offer to the holders of the Denver & Rio Grande refunding 5s, under which the refunding bond holders are to receive in exchange for their bonds 50 per cent in a new sinking fund mortgage 5 per cent bond due 1955 and 50 per cent in a 7 per cent cumulative preferred stock of the reorganized company, an average return of 6 per cent. According to the plan the Western Pacific agrees to put $10,000,000 in cash or property into the reorganized company, for which it will receive only common stock, "thereby increasing the amount of the equity behind the new securities." Future financing is provided for by a new senior unifying mortgage bond for the purpose of refunding of the underlying bonds, for future additions and betterments. None of these bonds, however, are to be issued at present.

One of the important features of the plan is the reduction in bonded debt from $125,056,000 to $101,669,000, a decrease of $23,387,000 and a reduction in the fixed charges from $5,896,940 to $4,613,160, a decrease of $1,283,780.

It is provided that the plan shall not become operative unless the Western Pacific Corporation and the committee shall otherwise agree, unless the holders of at least 50 per cent of the outstanding refunding bonds, not including bonds on deposit under the adjustment mortgage, nor bonds held in the sinking fund under the refunding mortgage, nor bonds held in the treasury of the new company, shall become bound by the plan on or before May 28, 1922, or a later date fixed by agreement between the committee and the Western Pacific Corporation; and if the holders of more than 50 per cent and less than 80 per cent of the refunding bonds, as above specified, shall become bound by the plan prior to that date (or a later date fixed by agreement as aforesaid), the plan may be declared operative by the Western Pacific Corporation, by written notice to that effect given to the committee, and in the same event, upon the giving of such notice, the plan shall thereupon become operative; but if the holders of 80 per cent of the refunding bonds, as above specified, shall become bound by the plan prior to that date (or a later date fixed by agreement, as aforesaid), the plan may be declared operative by either the Western Pacific Corporation or the committee, by written notice to that effect given to the other party and in the same event, upon the giving of such notice to either party the plan shall thereupon become operative.

J. H. Young, the president of the new company, estimates that it will be necessary to expend upon road structures and equipment in the next five years, including a small expenditure for extensions, not less than $20,670,237. For the eleven months ended November 30, 1921, the company showed net revenues of $4,405,677, which, added to other income, made a total income of $5,113,853. After allowing for various charges, however, the road showed a deficit amounting to $2,328,105.

The 5 per cent refunding bondholders' protective committee consists of the following: John Henry Hammond of Brown Brothers & Co., chairman; Bertram Cutler (John D. Rockefeller); Charles Hayden of Hayden, Stone & Co.; Andrew J. Miller of Boissevain & Co.; Frederick Strauss of J. and W. Seligman & Co.; Melvin A. Traylor, president, First Trust & Savings Bank, Chicago. The committee represents a very large amount of the refunding bonds and it recommends bondholders to deposit under the plan.

New Committee Opposes Plan.—An independent committee representing the Denver & Rio Grande first and refunding mortgage 5 per cent bonds and the adjustment mortgage 7 per cent bonds has been formed with James H. Perkins, president of the Farmers Loan & Trust Company, chairman.

The other members of the committee are R. Walter Leigh, of Maitland, Coppell & Co.; John G. Lonsdale, president of the National Bank of Commerce, St. Louis, and John H. McClement and Willis D. Wood, of Ladd & Wood.

The committee, headed by Richard Sutro, also representing the 7 per cent cumulative adjustment mortgage Denver & Rio Grande bonds, announced the receipt of a letter from Samuel Untermyer, counsel for the committee, advising against consenting to the proposal made by the Western Pacific. The committee also announced that it has arranged with the Farmers' Loan and Trust Company to advance the amount of the February 1 interest coupon on the 5 per cent bonds to depositing bondholders.

DETROIT, TOLEDO & IRONTON.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $451,000 of 5 per cent gold bonds maturing March 1, 1964, to reimburse the treasury for expenditures made between July 1, 1920, and July 1, 1921, for improvements, betterments and additions to permanent facilities.

GREAT NORTHERN.—*Authorized to Issue Bonds.*—The Interstate Commerce Commission has authorized an issue of $30,000,000 of general mortgage gold bonds to be sold at not less than 93⅛ per cent of par and accrued interest. Of the proceeds $15,000,000 is to be used to pay the note to the United States maturing March 1, $2,800,000 for the retirement of bonds of the Minneapolis Union, $4,170,000 for the purchase of equipment, and $7,215,000 for additions and betterments.

ILLINOIS CENTRAL.—*Asks Authority for Equipment Agreement.*—This company has filed with the Interstate Commerce Commission an application for authority to execute an agreement with the Pullman Company under the terms of which the purchase price of 650 refrigerator cars being built by the Pullman Company, $1,748,500, is to be paid in semi-annual instalments at the rate of $650 a day on a lease basis.

INTERNATIONAL & GREAT NORTHERN.—*Protective Committee Asks Reorganization Plan.*—Frederick Strauss, chairman of the protective committee of the three-year notes, after a meeting of the committee on Tuesday, announced that De Witt Millhauser of Speyer & Co., had been elected a member of the committee. J. & W. Seligman & Co. and Speyer & Co. were urged by the protective committee to submit a plan of reorganization of the International & Great Northern properties.

JACKSONVILLE TERMINAL.—*Asks Authority to Issue Bonds.*—This company has applied to the Interstate Commerce Commission for authority to issue $4,000,000 of refunding and extension mortgage bonds to be guaranteed by the Atlantic Coast Line, Florida East Coast, Seaboard Air Line and Southern. Part of the issue is to refund outstanding obligations and $1,100,000 is to be sold bearing interest at 6 per cent at not less than 95 per cent of par.

KANSAS CITY & PACIFIC.—*Bond Interest.*—The New York Stock Exchange has received notice that the interest matured August 1, 1921, on the 4 per cent 100-year bonds, due 1990, will be paid on presentation of coupons on and after January 31, 1922. The committee on securities ruled that the bonds be quoted ex-interest on January 31, the August 1, 1921, coupon, and that thereafter the bonds will be dealt in "flat" and until further notice must carry February 1, 1922, and subsequent coupons to be a delivery.

MISSOURI, KANSAS & TEXAS.—*Reorganization.*—J. & W. Seligman & Co. and Hallgarten & Co., reorganization managers, have called the attention of bondholders to the fact that the extended period for the deposit of securities will expire on Saturday, February 4.

A few holders of certificates of deposit for the M., K. & T. second mortgage 4s, the first extension 5s, the first mortgage 5s and the M., K. & T. first 5s are still under the misapprehension that they need take no affirmative step in order to participate in the reorganization plan, but it is necessary for them to present their certificates of deposit to be stamped as assenting to the plan.

WISCONSIN CENTRAL.—*Minority Holders Begin Inquiry.*—W. J. Wollman and associates, representing the minority common stockholders, are planning an investigation of the road's financial condition to determine if its resources have been handled in any manner detrimental to their interests.

The road constitutes the Chicago entrance for the Canadian Pacific, being controlled through the Minneapolis, St. Paul & Sault Ste. Marie which owns 51 per cent of the Wisconsin Central common shares. The common stock has never paid a dividend, and the question has been raised whether the Wisconsin Central has not been made to bear too great a portion of certain charges thereby benefiting the Soo Line, and also the Canadian Pacific. The Wisconsin Central minority interest which proposes investigation represents 25,000 shares of common stock.

Tentative Valuations

The Interstate Commerce Commission has announced the tentative valuation of the property of the New York, Ontario & Western, including its leased lines, in which the final value as of June 30, 1916, is stated as $34,495,193 for the property wholly owned and used, and $10,556,177 for property leased, making a total of $45,051,370 for the property used. The capitalization outstanding as of the valuation date was $88,245,982.

The commission has also issued tentative valuations of the property of the Butler County Railroad as of 1916, in which the final value is stated as $910,396 for the property used and $907,490 for the property owned. The final value of the property owned by the Central Union Depot & Railway Company of Cincinnati as of 1915 is given as $970,808 and the property used as $1,095,678. For the Artesian Belt the final value of the property owned and used as of 1917 is given as $443,281. The final value of the New Mexico Central as of 1916 is placed at $1,365,024, and of the Southern Railway in Mississippi as of 1915 at $4,678,545 for the property used and $4,470,534 for the property owned.

Additional Equipment Trust Sales

The director general of railroads has announced additional sales, at par plus accrued interest, of railroad equipment trust certificates held by the government as follows:

To Lee, Higginson & Co., New York:	
Kansas City Terminal, 1923-27, inclusive	$62,500
Terminal Railroad Association of St. Louis, 1923-1927, inclusive	114,000
Indiana Harbor Belt, 1923-1927, inclusive	196,500
Monongahela Railway, 1923-1927, inclusive	164,500
	$537,500
To Guaranty Trust Company of New York and associates:	
Pere Marquette Railway Company, 1923-1935, inclusive	$5,834,400
To Harris, Forbes & Co., New York:	
Maine Central Railroad Company, 1923-1935, inclusive	695,500

The total amount of equipment trust certificates sold by the government to date, at par plus accrued interest, is $218,132,100.

Railroad Administration Settlements

The United States Railroad Administration reports the following final settlements, and has paid out to the several roads the following amounts:

Colorado Midland	$319,000
Carolina & Northwestern	95,000
Blue Ridge	5,500
Tallulah Falls	3,000
Pacific Coast	25,000
Memphis Union Station	10,000

Dividends Declared

Cleveland & Pittsburgh.—Guaranteed, 1¾ per cent, quarterly; special guaranteed, 1 per cent, quarterly; both payable March 1 to holders of record February 10.

TREND OF RAILWAY STOCK AND BOND PRICES—AVERAGE PRICE OF 20 REPRESENTATIVE RAILWAY STOCKS.

Close of Business January 31	Last Week	Last Year
56.35	56.97	57.76

AVERAGE PRICE OF 20 REPRESENTATIVE RAILWAY BONDS

Close of Business January 31	Last Week	Last Year
81.53	82.02	76.29

Railway Officers

Executive

George F. Baker has resigned as chairman of the board of directors and as a director of the Central of New Jersey and the office of chairman has been abolished.

George A. Shwab was elected vice-president of the Tennessee Central, with headquarters at Nashville, Tenn., at a meeting held by the board of directors on January 26.

Financial, Legal and Accounting

Robert W. DeForest, vice-president and general counsel of the Central of New Jersey, has been appointed general counsel, the position of vice-president and general counsel having been abolished, effective February 1.

L. M. Hannaford has been appointed assistant real estate and tax agent of the Central of New Jersey with headquarters at New York, succeeding **Albert A. Hesser,** promoted to manager of the marine department, effective February 1.

Walter Stokes, general attorney of the Tennessee Central, was elected general counsel at a meeting held by the board of directors in Nashville, Tenn., on January 26. **P. D. Houston** was elected treasurer, **W. T. Hale,** secretary and **W. M. Mooney,** comptroller. **H. E. Norton** was appointed assistant treasurer and **A. R. Baker** assistant secretary. All of the above officers will have their headquarters in Nashville.

Operating

Charles H. Stein has been appointed general manager of the Central of New Jersey, with headquarters at New York, effective February 1. Mr. Stein will have charge not only of the operating department but of the engineering, mechanical and marine departments as well. Mr. Stein was born at Baltimore, Md., in 1871 and was educated in the Baltimore City College. He began his railroad career on December 7, 1889, as a rodman on the Western Maryland, and from that time until 1893 was transitman and assistant engineer on preliminary surveys and construction. From 1893 until May, 1903, he was assistant roadmaster on the same road and from then until June, 1905, was assistant supervisor for the Philadelphia & Reading at Reading, Pa. In 1905 he was promoted to supervisor. Two years later he entered the service of the Central of New Jersey as engineer, maintenance of way, and held that position until appointed superintendent in February, 1914. In 1918 he became assistant general manager of that road and of the Philadelphia & Reading. On March 1, 1920, he became assistant to the president of the Central of New Jersey, which position he was holding at the time of his recent appointment as general manager. The position of assistant to the president has been abolished.

C. H. Stein

F. J. Gavin, general superintendent of the Lake district of the Great Northern, with headquarters at Superior, Wis., has had his jurisdiction extended over the Dakota division.

J. L. Close, superintendent of the Breckenridge division, with headquarters at Breckenridge, Minn., has had his jurisdiction extended over the line from Wahpeton Junction, N. D., to Moorhead Junction, Minn., while **J. E. O'Brien,** superintendent of the Dakota division, with headquarters at Grand Forks, N. D., has had his authority extended over the Northern division. The jurisdiction of **J. A. Frogner,** superintendent of the Willmar division, with headquarters at Willmar, Minn., has been extended over the Sioux City division.

Albert A. Hesser, assistant real estate and tax agent of the Central of New Jersey, has been appointed manager of the marine department, effective February 1. Mr. Hesser was born at Mahanoy Plane, Pa., on July 8, 1886. He was graduated from Pottsville (Pa.) High School and from Lehigh University—from the latter institution in 1911 with a degree in civil engineering. In 1915 he received the degree of bachelor of laws from the Brooklyn (N. Y.) Law School and was admitted to the New York bar in 1917. Mr. Hesser entered the service of the engineering department of the Central of New Jersey in 1912, was transferred to the freight department in 1916 and later in the same year became an industrial engineer in the real estate and tax department. Mr. Hesser enlisted in the army in September, 1917, and was discharged in August, 1919, with the grade of captain of engineers. He returned immediately to the service of the Central of New Jersey and was appointed assistant real estate and tax agent on March 1, 1920, which position, as noted above, he was holding at the time of his recent appointment.

Traffic

J. F. Moses, division passenger agent of the Atchison, Topeka & Santa Fe, with headquarters at San Francisco, Cal., has been promoted to assistant general passenger agent, with the same headquarters.

William H. Millard, city freight agent of the Northern Pacific, with headquarters at Chicago, has been promoted to general agent, with headquarters at Cleveland, Ohio, succeeding **R. J. Tozer,** who has been transferred to Pittsburgh, Pa.

F. V. Martin, formerly agent in charge of the consolidated ticket office at Indianapolis, Ind., has been appointed general agent of the Chicago, Indianapolis & Louisville, with the same headquarters, the consolidated ticket office having been discontinued.

W. S. Ferstel has been appointed district passenger agent of the Illinois Central, with headquarters at Chicago. **P. S. Mottz,** traveling passenger agent, with headquarters at Chicago, has been promoted to special passenger agent, with the same headquarters.

Arthur B. Smith, whose appointment as passenger traffic manager of the Northern Pacific, with headquarters at St. Paul, Minn., was announced in the *Railway Age* of January 21 (page 256), was born at Boston, Mass., on September 15, 1861. He entered railroad service in 1880, as a clerk in the chief engineer's office of the Burlington & Missouri River (Chicago, Burlington & Quincy) at Omaha, Neb., and was successively division engineer, chief clerk to the chief engineer, chief clerk to the general superintendent, chief clerk to the general passenger agent, and assistant general passenger agent, until November 1, 1901, when he left to become auditor of the Yellowstone Park Company. He re-entered railroad service on May 1, 1904, as assistant general passenger agent of the Northern Pacific, with headquarters at St. Paul, Minn., which position he held until December, 1906, when he left to become general traffic manager of the Consolidated Railways at New Haven, Conn. In March, 1908, he was appointed general passenger agent of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., which position he was holding at the time of his recent appointment.

Mechanical

Frederick A. Isaacson has been appointed assistant mechanical engineer of the Atchison, Topeka & Santa Fe, with headquarters at Topeka, Kan.

D. J. Durrell, master mechanic of the Pennsylvania, Southwestern Region, with headquarters at Cincinnati, Ohio, has been transferred to Lancaster, Ohio, succeeding R. J. Sponseller, who has been acting master mechanic.

W. C. Smith, assistant mechanical superintendent of the Missouri Pacific with headquarters at St. Louis, Mo., has been promoted to mechanical superintendent with the same headquarters succeeding J. E. O'Brien, resigned. Mr. Smith will be succeeded by **Charles Harter** who will also continue to perform his duties as mechanical engineer.

With the leasing of the Erie car shops at Youngstown, Ohio, to the Youngstown Equipment Company, **W. W. Warner** has resigned from the position of shop superintendent of the Erie to become manager of the Youngstown Equipment Company. **Webster E. Harmison,** master mechanic at Kent, Ohio, will have jurisdiction over all car department matters formerly handled by Mr. Warner.

Purchasing and Stores

E. R. Brinton has been appointed general storekeeper of the Chesapeake & Ohio of Indiana, and of the Cincinnati division of the Chesapeake & Ohio, with headquarters at Covington, Ky. **J. P. Kavanaugh** has been appointed general storekeeper of the Eastern division of the Chesapeake & Ohio, with headquarters at Clifton Forge, Va. The position of inspector of stores has been abolished.

G. W. Bichlmeir, whose appointment as general purchasing agent of the Union Pacific, with headquarters at Omaha, Neb., was announced in the *Railway Age* of January 28 (page 306).

C. W. Bichlmeir

was born at Cincinnati, Ohio, on September 10, 1886. He entered railroad service in 1906 as a clerk in the office of the purchasing agent of the Cincinnati, Hamilton & Dayton (Baltimore & Ohio). In 1909 he left to become a clerk in the supply department of the Missouri Pacific at St. Louis, Mo., and the following year he was promoted to chief clerk to the division storekeeper at Osawatomie, Kan., which position he held until January, 1911, when he left to become chief clerk to the general storekeeper of the Kansas City Southern at Kansas City, Mo. Mr. Bichlmeir left railroad service in 1917 to engage in other business. He re-entered the employ of the Kansas City Southern in April, 1918, as chief clerk to the purchasing agent and, in August of the same year, he was promoted to assistant to the purchasing agent. He was promoted to purchasing agent with headquarters at Kansas City, Mo., in March, 1920, and in November of that year he left to become purchasing assistant of the Union Pacific, with headquarters at Omaha, Neb., which position he was holding at the time of his recent promotion.

Special

H. B. McCoy, director of the government-owned Manila Railroad, has been elected general manager of that road, succeeding **E. J. Westerhouse.**

Obituary

Herbert D. Howe, vice-president and general counsel of the New York, Chicago & St. Louis, with headquarters at Cleveland, Ohio, died at his home in that city on January 29.